

Is
Vo

S
\$
H
E

E
\$54
era
fun
qua
ma
He
gas
N
to
Spi
Ser
T
ed
in
I
fisc
ear
the
con
M
gro
the
for
tha
per
S
Ser
pro
Spi

U
M

C
cen
att
Car
Ger
me
pai
F
tra
of
Nev
frig
tric
Ind
A
divi
P
Ger
men
lini
sult
can
A
pro
Pro
W
and
let
Qu
F
at

SU
PL

E
tion
tion
mar
frig
ligh
ligh
M. J
stat
T
equi
stru
It w
25,0
duct
tion
pres
clar

E
:

B
for
esta
by t
of
sold
of
ende

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office.

The business newspaper of the refrigeration industry

ISSUED EVERY WEEK
VOL. 6, No. 1, SERIAL No. 129Copyright, 1931, by
Business News Pub. Co.

DETROIT, MICHIGAN, SEPT. 9, 1931

Entered as second class matter
Aug. 1, 1927, at Detroit, Mich.TEN CENTS PER COPY
TWO DOLLARS PER YEARSERVEL REPORTS
\$483,220 PROFIT
IN 3RD QUARTEREarnings of \$886,274
Recorded for First
Nine Months

EVANSVILLE, Ind. — Earnings of \$548,524 prior to the deduction of federal income tax reserve and interest on funded debt were reported for the quarter ending July 31 by Servel, Inc., manufacturer of Electrolux and Servel Hermetic refrigerators and Hercules gas engines and truck bodies.

Net earnings for the quarter amount to \$483,220, according to Herbert H. Springfield, chairman of the board of Servel, Inc.

The interest on funded debt amounted to \$22,804, while \$42,500 was placed in reserve for federal income tax.

During the first nine months of the fiscal year, the corporation has net earnings of \$886,274, reached through the deduction of bond interest and income tax.

Mr. Springfield reports satisfactory growth in the Electrolux division with the shipments in the metropolitan area for the nine-month period being more than double that for the corresponding period of the previous year.

Since the corporation introduced the Servel Hermetic line, distribution of the product has been made nation-wide, Mr. Springfield reports.

UTILITY EXECUTIVES
MEET AT CLEVELAND

CLEVELAND—More than four score central station merchandise managers attended a conference Sept. 1, at Nela Camp, here, and heard the plan of the General Electric refrigeration department fall sales activity, an election campaign.

H. H. Bosworth, manager of the central station division, gave the address of welcome. Dr. George W. Allison, New York City, director of Electric Refrigeration Bureau of the National Electric Light Association, spoke on "The Industry's Position."

A. L. Scaife, of the merchandising division, then gave a brief talk.

P. B. Zimmerman, manager of the General Electric refrigeration department, spoke on "Our Fifth Year," outlining the sales activities and the results anticipated through the election campaign.

A. M. Sweeney, director of refrigerator production, spoke on "Quality and Mass Production."

W. J. Daily, sales promotion manager, and a cast of players presented a playlet entitled, "The Case of Old Man Quota."

Following a buffet lunch in Nela Camp at noon, the afternoon session was de-

(Concluded on Page 2, Column 5)

SUNBEAM CO. COMPLETES
PLANS FOR NEW BUILDING

EVANSVILLE, Ind.—Final construction details on the new building addition to the Sunbeam Electric Mfg. Co., manufacturer of Sunbeam electric refrigerators, electric generators, farm lighting systems, and locomotive headlights, will be completed this week, the M. J. Hoffman Construction Co., builder, stated.

The modern building, costing with equipment about \$45,000, is a fireproof structure of brick, steel, and concrete. It will have two stories, providing about 25,000 sq. ft. additional area for production of Sunbeam refrigerator plants.

"The plant will be ready for production about Jan. 1," William A. Carson, president and general manager, declared.

BROOKLYN GAS CO. SELLS
364 ELECTROLUX IN WEEK

BROOKLYN—A new weekly record for wholesale refrigeration sales was established the week ending August 8 by the Brooklyn Union Gas Co. A total of 364 Electrolux refrigerators were sold, which breaks the previous mark of 264 established during the week ended June 20.

Westinghouse Sales Up; Contest Aids

MANSFIELD, Ohio, Sept. 8.—Sale of Westinghouse electric refrigerators during the first eight months of 1931 is 400 per cent ahead of the sales for the same period of 1930 according to an announcement by C. E. Allen, commercial vice president of Westinghouse Electric & Mfg. Co.

Minor reductions in recommended prices have been made on de luxe models, according to the Westinghouse vice president, but no price reduction has been made or is contemplated on the standard line.

MANSFIELD, Ohio—R. N. Snyder, salesman for E. H. Maher, Inc., Hempstead, L. I., N. Y., led salesmen in the Westinghouse "Build-a-Refrigerator" sales contest on September 1, the halfway mark in the two months' campaign.

Because of his ranking, Mr. Snyder will receive a Westinghouse columnette radio. The presentation will be made by George W. Moister, sales promotion manager and director of the contest.

A. Black of Allen-Ingraham, Inc., New York City, was second in the contest, 150 discs behind Snyder.

FRIGIDAIRE REDUCES
PRICES ON ALL UNITS

By George F. Taubeneck

DAYTON—Reduced prices on all household and commercial Frigidaires were announced to dealers, salesmen, and the entire Frigidaire regional selling organization of this territory in a fall "pep meeting," here, Sept. 3. To 43 other key distributing points went the same message and the same enthusiasm-building program within the last fortnight. Effective Sept. 1, the price reductions

range up to \$33 on household models, and run even more on commercial machines. Variations in the reductions on the various models tend to even up the curve of the Frigidaire price schedule.

Dealers will receive rebates on all models now in stock commensurate with the new prices.

Frigidaire dealers and salesmen were also told that: "the interests of the sales organization can best be served by continuing the White Line without any major changes until at least after the spring selling season of 1932."

"Further, we do not expect any major changes on existing commercial equipment, at least until after next spring's selling season."

Not alone on lower prices and the assurance of no immediate radical changes in design will Frigidaire salesmen be allowed to depend for tools to whack down sales resistance. At the 44 fall meetings just held, new methods of gaining entree, of getting the sales story across, and of obtaining the order were presented.

Chief among these is the Frigidaire insurance policy. Prospects for household Frigidaires will be given "savings insurance" proposals. Commercial pros-

(Concluded on Page 6, Column 3)

N. E. L. A. FALL DRIVE
TO OPEN OCTOBER 3

NEW YORK—Built around the theme of food preservation, the fall electric refrigeration sales drive will be opened in 500 cities throughout the country during the week of October 3 to October 10 in cooperative exhibits.

Plans for "Electric Refrigeration Week" have been sent to dealers and distributors of electric refrigerators by the Electric Refrigeration bureau of the National Electric Light association, which is sponsoring a year's campaign to sell 1,000,000 electric refrigerators.

While local conditions determine the type of exhibits which will be held, the booklet of the bureau suggests a complete program for the week and carries samples of advertising copy available to refrigeration dealers.

The general theme of food preservation will be studied through the effects of refrigeration upon foodstuffs, the year-around need for refrigeration, and the costs of food waste and spoilage.

Cooperative exhibits will be held throughout the country during the week and home economics demonstration will be a major part of the programs.

Objectives of the campaign are to make immediate sales and secure prospects.

MERCHANDISE EXPERTS TO
ATTEND BOSTON MEETING

BOSTON—Merchandising experts from all sections of the country will convene here September 14 to 16 for the Conference on Retail Distribution.

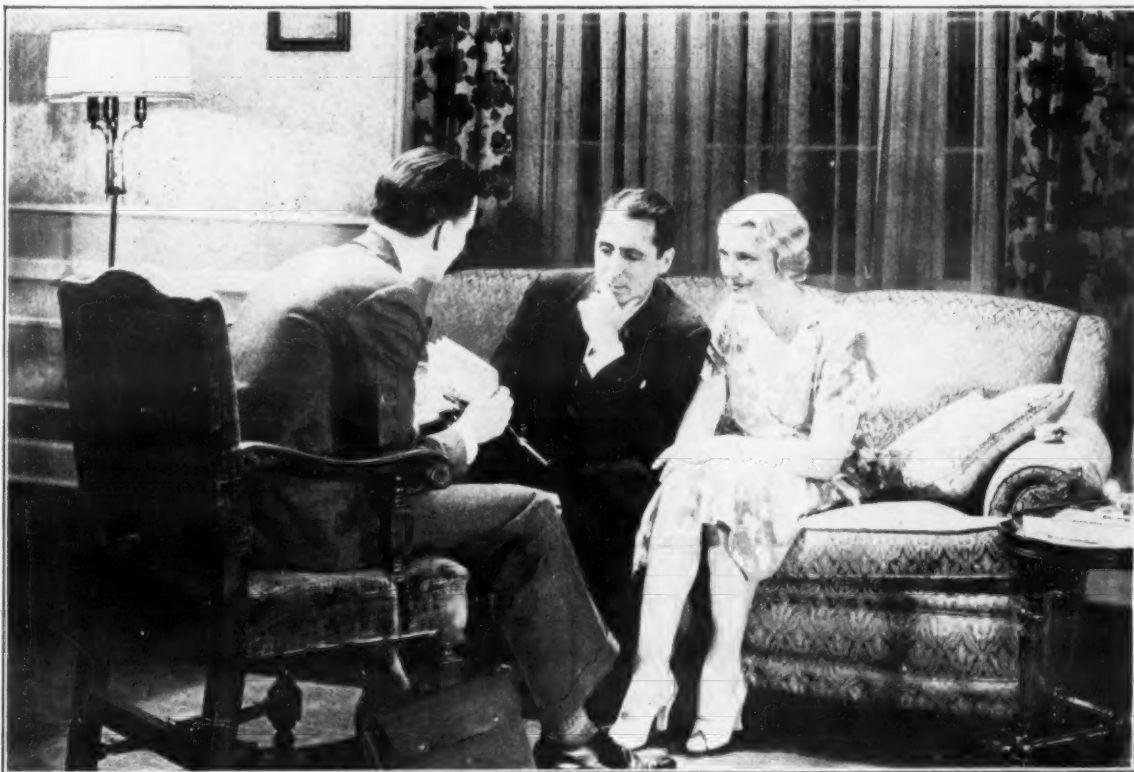
Lewis W. Waters, vice president of General Foods Corp., will discuss "Influence of Scientific Research on Methods of Food Distribution," while R. B. Alsbaugh of the University of Chicago will talk on "Consumers' Attitude Toward Special Sales."

Arthur Brisbane, editorial writer for Hearst newspapers, will give an address on "The Consumer and Retail Distribution." Chain store heads, government experts, and editors will also appear on the program.

MAJESTIC DEALERS NAMED
FOR INDIANA SECTION

TERRE HAUTE, Ind.—Majestic electric refrigerators will be sold in Terre Haute and suburbs by the following merchants: Silverstein Bros., Banner Furniture Co., Indiana Furniture Co., here and at Clinton, Ind.

'You Can't Afford To Wait Until Spring'



Thousands of salesmen all over the country today are telling prospects the story of food savings and protection in cold months by means of adequate refrigeration. This scene is from "Cold Cash," Frigidaire's talkie.

Notice To Subscribers

This Special Offer Expires Sept. 30, 1931

Up until the 30th of this month, all new subscriptions and renewals or extensions of old subscriptions will include the new monthly publication, REFRIGERATED FOOD NEWS, for a period of one year without additional charge.

Orders for ELECTRIC REFRIGERATION NEWS received on or after Oct. 1, 1931, will not include the new paper.

The price of REFRIGERATED FOOD NEWS only is \$1 per year.

Regardless of when your subscription expires, you may extend it for another year at the old rate of \$2 (or three years at \$5), and also receive REFRIGERATED FOOD NEWS for one year only, if you send in your check by Sept. 30.

See subscription coupon on page 16. Note that this offer applies only to United States and possessions and to countries in the Pan-American Postal Union.

Rate Increase

Advance notice is also given that the subscription rates for ELECTRIC REFRIGERATION NEWS will be in-

creased, effective Jan. 1, 1932. On that date the rate will be \$3 per year, or two years for \$5.

Beginning with this issue, ELECTRIC REFRIGERATION NEWS becomes a weekly paper. Subscribers will, therefore, receive double the number of issues, while the rate increase which takes effect Jan. 1, will be only 50 per cent.

Canadian Rates

On account of the new tariff imposed by the Canadian government, amounting to five cents per copy, in addition to postage, it is necessary to increase the Canadian subscription rates immediately. ELECTRIC REFRIGERATION NEWS is \$5 per year (\$6 after Jan. 1, 1932), and REFRIGERATED FOOD NEWS is \$2 per year in Canada.

For all other foreign countries not in the Pan-American Postal Union, the subscription rate for ELECTRIC REFRIGERATION NEWS after Jan. 1, 1932, will be \$4 per year.

Sign the coupon and mail with your check at once and take advantage of the present low rates.

LEGS PLACED ON 3 MODELS
OF ICE-O-MATICS

BLOOMINGTON, Ill.—Legs are now being furnished on WLP, WP, P models of Ice-O-Matic, electric refrigerator manufactured by the Williams Oil-O-Matic Heating Corp. here.

Four-in. porcelain finished legs are placed on the P models while the WLP and WP models are equipped with 5-in. lacquer finish legs.

The P-8 model is also furnished now with a quick-freeze control.

AMERICAN GAS ASSOCIATION
CONVENTION OPENS OCT. 12

ATLANTIC CITY—The thirteenth annual convention of the American Gas Association will open in the Municipal auditorium here, Oct. 12. The convention will last for four days.

In connection with the convention will be the annual exhibition of gas appliances which will include an Electrolux refrigerator display.

A number of sectional meetings are scheduled for the convention.

KELVINATOR BRANCH
SELLS OIL BURNERS

By Phil Redeker

DETROIT—An experiment in companionate merchandising will be carried out this fall by the Kelvinator Sales Corp. of Detroit, which has just acquired the exclusive agency for Torid-heet oil burners in this city.

Major considerations which led to the addition of the oil burner line were similarity in the merchandising process, exploitation of a more extensive line with no noticeable increase in overhead expense, a chance for increase in dollar volume of business, and a greater field for the individual salesman, Sales Manager H. B. Barber, declares.

"The overhead expense entailed in the distribution of electric refrigerators is greater than in any other branch of the specialty field, because of the extended nature of the salesroom and selling facilities. The addition of another type of specialty product brings but little added burden," Mr. Barber states.

"We searched the specialty field for the proper product to add to our line, and finally selected the oil burner because the saturation point in its market was relatively low enough to dispense with the problem of positive sales resistance, but high enough to demonstrate that the engineering and sales problems have passed the experimental stage.

"Much has been said for the scheme of companionate merchandising as a means of 'leveling out' the sales curve. We are not so much interested in this phase of the plan as we are in the actual increase in dollar volume of

(Concluded on Page 6, Column 2)

DISTRIBUTOR GIVES FOOD
WITH EACH NORGE

PHILADELPHIA—Electric refrigerators completely stocked with food are offered to purchasers of Norge refrigerators by Trilling & Montague, distributor. This offer is being made in connection with the marathon campaign.

3 EASTERN UTILITIES RESIGN FROM N.E.L.A.

NEW YORK—Confirmation of the report that three important Eastern utilities had resigned from the National Electric Light Association has been made by Paul S. Clapp, managing director of N. E. L. A.

Resignations of Public Service Electric & Gas Co. of Newark, N. J., United Gas Improvement Co. of Philadelphia, and Philadelphia Electric Co. were tendered following the annual N. E. L. A. convention in June.

Along with the resignation of the three closely related utilities, all employees belonging to the association resigned and withdrew from committees.

No explanation of the resignation has been made by the utilities, as John E. Zimmerman, president of U. G. I., is in Europe, and Thomas N. McCarter, president of Public Service Corp. of New Jersey, and subsidiaries, would not comment on the move.

The *New York Times*, however, quoted an unnamed official to the effect that the source of dissatisfaction lay in the make-up of the vice presidential ticket for 1931-32.

OREGON COLD STORAGE HEAD KILLED IN ACCIDENT

PORTLAND, Ore.—John H. White, 40, vice president of the Terminal Ice & Cold Storage Co. of Oregon, was injured fatally Aug. 12 when his automobile crashed into the railing of a bridge over the Molalla river near Canby, Ore., and rolled down the embankment. He died enroute to the hospital.

Mr. White studied law at the University of Virginia and started practice in 1915. He had owned an interest in the Terminal Ice & Cold Storage Co. for the past six years and in 1930 retired from the law practice.

Solving Sales Problems over Dinner Table



A table was used for a sales discussion at Albany when Kelvinator executives visited there. They are: Edward Smith, company manager of Albany Garage; C. M. Armstrong, vice president and manager of Refrigeration Discount Corp.; J. F. Crossin, regional manager; A. M. Taylor, advertising director; Al Schluttig, Albany sales head.

BAILY NAMED TO MANSFIELD OFFICE OF WESTINGHOUSE

MANSFIELD, Ohio—George Baily, former Pacific Coast merchandise manager for Westinghouse Electric & Mfg. Co., has been appointed assistant sales manager at the headquarters of the merchandise department here. He was Pacific Coast manager for three and one-half years.

C. A. Meier, former district manager in charge of merchandising for the Southwest and Rocky Mountain regions, will succeed Mr. Baily.

Number, Please!

MADISONVILLE, Ky.—Even the telephone number of the Madisonville Refrigeration Co., Frigidaire dealer here, is cold. "Zero" is the number, and practically every resident in the city knows that if you call "Zero" you get Frigidaire.

"It has proven effective this summer," says the dealer, "and to attest it he reports that an entire year's quota was sold during July."

500 UNITS SOLD IN 60-DAY KENTUCKY SALES CAMPAIGN

LOUISVILLE—Five hundred electric refrigerators were sold in the 60-day sales campaign of Kentucky Utilities Co., Lexington Utilities Co., and associated organizations, which ended recently.

The goal in the campaign was the sale of 400 units.

In the drive, the mountain division sold 219.4 per cent of its quota while the central division was second with 131.3 per cent. The district manager's award went to C. G. Cox, Pineville, who sold 522.3 per cent of his quota, while W. E. Arnold, with a mark of 760 per cent, won the local manager's award.

Carl Haggard of the mountain division won the division commercial manager's award.

15,998 ELECTROLUX UNITS SOLD IN 6-MONTH PERIOD

NEW YORK—More Electrolux refrigerators were delivered and installed for customers of the Consolidated Gas Co. of New York and affiliated gas companies during the first six months of 1931 than during any previous six months' period, according to an announcement made recently.

A total of 15,998 gas refrigerators was delivered from Jan. 1 to June 30, which is an increase of 114 per cent over the corresponding period of 1930, when 7,461 refrigerators were delivered.

The month of June was a record month for refrigerator installations, with 4,223 gas refrigerators delivered to customers in Manhattan, Bronx, Westchester, and portions of Queens, as compared with 2,126 in June, 1930. This is an increase of 99 per cent.

G. E. DISTRIBUTOR MAKES MORTUARY INSTALLATION

CHICAGO—The R. Cooper, Jr., Inc., Chicago distributor of General Electric refrigerators has recently made eight installations of mortuary boxes.

The boxes are used to preserve the body from decomposition during the period of preparation for burial. Some have also been placed in clinics and medical school hospitals to preserve bodies used for dissection purposes.

The model being distributed by the General Electric dealer is a tall, lengthy two-compartment box, and may be finished in woods of varying kinds and qualities.

A temperature of 34° F. is maintained in the boxes when used for undertaking purposes, but this is lowered to 5° F. if the body is held for dissection.

KELVINATOR DISTRIBUTOR VISITS PLANT

DETROIT—C. Robitaille, Kelvinator distributor at Quebec, province of Canada, and proprietor of a music store in the Dominion, was a visitor to the Kelvinator factory in Detroit late in August.

Accompanying Mr. Robitaille was George F. VanDuyse, district manager of Kelvinator of Canada, Ltd., London, Ontario. Edmond Paquette, sales manager for C. Robitaille ENR at Quebec, and B. H. Bull, service school instructor for Kelvinator of Canada, Ltd.

MAYALL ICE MACHINE CO. MOVES TO NEW QUARTERS

SPOKANE, Wash.—The Mayall Ice Machine Co., manufacturer, dealer, installer, and servicer of ice making and refrigerating plants, has moved to larger offices at 120 E. Sprague Ave. The company has been in business for 25 years and is owned by John E. Farris and Stanley Mayall.

GIFT OF PUBLISHER

UTILITY EXECUTIVES MEET AT CLEVELAND

(Concluded from Page 1, Column 1)

voted to a discussion of the fall sales activity, which was introduced by E. H. Norling, of the sales promotion division.

Jean DeJen of the merchandising division outlined the plan of the election campaign. A. C. Mayer, manager of the merchandising division, presided over a brief discussion which followed.

Miss Edwina Nolan, director of the home service division, and F. B. Slye of the products division, with Paul H. Dow, manager of the G. E. Refrigeration Institute, comprised the cast which presented a playlet entitled "What Mrs. Wallace Said."

The feature of the conference was a talk by T. K. Quinn, New York City, vice president of the General Electric Co. He closed the conference with a speech on "Our Fortunate Business."

The conference ended in the evening with a clam bake and an entertainment program for the guests.

Among those present at the conference were:

E. G. Cloud, P. B. Zimmerman, E. O. Mink, H. D. Murray, Clarence Wheeler, L. F. Riegel, D. M. DeBard, J. W. Busch, F. M. Houston, M. E. Skinner, R. W. Hoy, A. A. Uhalt, C. E. Waters, E. G. Taggart, M. L. Parsons, O. A. Acuff, A. C. Davey, E. R. Felber, Turner Barger, H. G. Rahn, A. M. Sweeney, C. H. Locke, B. C. Ritter.

H. E. May, C. C. Sorenson, F. J. Cottrill, R. C. Cameron, E. A. Snyder, Dan Willis, T. B. Allen, M. McKinney, Leo Clavin, T. K. Quinn, J. O. Morris, J. T. Schilling, J. J. Donovan, L. H. Miller, R. E. McMillin, W. M. Hutchison, W. R. Power, H. W. Kumlir, J. T. Rogers, H. H. Bosworth, J. M. Walkers, P. H. Dow.

C. C. Robinson, C. G. Neff, W. H. Bon Durant, A. T. Wilks, Dr. George W. Allison, L. W. Clauer, H. A. Cowgill, R. M. Phelps, T. E. Roach, Tom Milot, W. L. C. Lang, George Kobick, C. C. Roberts, O. C. Hamilton, S. E. Stewart.

J. H. Van Aernan, H. A. Keys, W. J. Daily, C. C. Henderson, A. C. Mayer, O. C. Swavely, William Very, C. L. Dunn, J. E. Krauss, F. M. Corliss, B. E. Trick, Frank Slye, C. J. Enderle and B. M. Walshall.

'BUY IN GROUPS', SLOGAN USED IN APPLIANCE SALES

TACOMA, Wash.—"Buy in groups and save money," is the new slogan being featured for the sale of gas appliances by the Washington Gas & Electric Co.

With the purchase of any two appliances the company allows 5 per cent off the combined price of both. With the purchase of any three appliances, 10 per cent off is given with 24 months to pay.

"Buy two and get one free," the advertising continues. For example:

Gas Range\$155.00
Electrolux215.00

Total\$370.00
Tank Water Heater25.50

Total\$395.50
Less 10 per cent39.55

Grand total\$355.95

"With this combination your total cost is \$14.05 less than the regular cost of the gas range and gas refrigerator—besides you get the tank water heater free."

L. H. BENNETT CO. MAKES APARTMENT HOUSE SALES

SAN FRANCISCO, Calif.—The L. H. Bennett Co., Ltd., distributor of General Electric refrigerators, reports the following recent apartment-house installations in this area:

The A. J. Faggioni apartments were equipped with four "apartment-house model" General Electric refrigerator units; 96 individual units of the same model were installed in the Huntington apartments, and 58 in the Louard apartments.

Twenty-two units were installed in the Cadillac apartments, 54 in the Coit hotel, Oakland, and 16 in the Gern apartments, Marysville.

430 COMMERCIAL SYSTEMS INSTALLED IN WASHINGTON

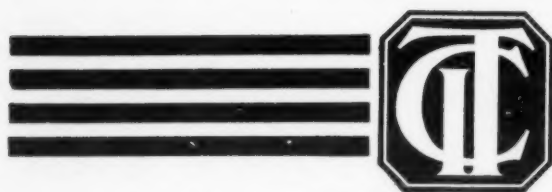
WASHINGTON, D. C.—Installations of commercial refrigeration systems in the capital from June 30, 1930, to June 30, 1931, totalled 430, according to the report issued recently by the District of Columbia building department.

The investment in commercial electric refrigeration for the year as reflected in the report was \$239,310. The report did not take cognizance of domestic or apartment house installations.

MAXON, PHELPS ADVERTISING AGENCIES MERGE

DETROIT—A consolidation of advertising accounts of Maxon, Inc., General Electric refrigeration division advertising agency, and George Harrison Phelps, Inc., has been consummated.

You need C. I. T.—If You want a Finance Service that moves fast



THESE C. I. T. LOCAL OFFICES
WILL WELCOME YOUR
INQUIRY

Abilene-Akron-Albany-Allentown
Altoona-Amarillo-Asbury Park
Asheville-Atlanta-Augusta
Baltimore-Bay Shore-Beaumont
Beckley-Binghamton-Birmingham
Boomingtown-Bluefield-Boise
Boston-Bronx-Brooklyn-Buffalo
Butte-Camden-Charleston
Charlotte-Chicago-Cincinnati
Clarksburg-Cleveland-Columbia
Columbus-Dallas-Davenport
Dayton-Denver-Des Moines
Detroit-El Paso-Erie-Fort Wayne
Fort Worth-Fresno-Glens Falls
Grand Rapids-Green Bay
Greensboro-Greenville
Hagerstown-Harrisburg-Hartford
Hempstead-Hickory-Houston
Huntington-Indianapolis-Jackson
Jacksonville-Jamaica-Jamestown
Jersey City-Johnson City-Kansas
City-Kenosha-Knoxville-Lansing
Lexington-Lincoln-Little Rock-Los
Angeles-Louisville-Manchester
Memphis-Miami-Milwaukee
Minneapolis-Minot-Montgomery
Montpelier-Mt. Vernon-Nashville
Newark-New Haven-New Orleans
New York-Norfolk-Oklahoma City
Omaha-Orlando-Owensboro
Philadelphia-Phoenix-Pittsburgh
Portland, Me.-Portland, Ore.
Poughkeepsie-Providence-Raleigh
Reading-Reno-Richmond-Roanoke
Rochester-Sacramento-St. George
St. Louis-Salt Lake City-San Antonio
San Diego-San Francisco-San Jose
Seattle-Sioux Falls-South Bend
Spokane-Springfield-Spring Valley
Stockton-Syracuse-Tampa-Taledo
Tucson-Tulsa-Utica-Washington
Wheeling-White Plains-Wichita
Wilkes-Barre-Youngstown.

Because every feature of our Service Organization is geared to meet your need for immediate results!

Take note of the C. I. T. Office which is nearest you. It is a complete financing unit, ready to give full service from the beginning to the end of an instalment transaction. It will check your prospective purchasers and report, at no expense to you. It will take your contracts as you make them and promptly give you cash. It will make collections for you... tactfully, through trained C. I. T. men who know local conditions.

In effect, you can make the C. I. T. Office your office for the handling of credit, collection and financing details. And in these days of intense competition refrigerator merchants are finding it pays them to concentrate on selling and leave banking to bankers.

C. I. T. Plans cover all models of all approved types of mechanical refrigerators. Costs are uniformly low, and the Plans simple and easy to operate. They are backed by an institution of great capital strength and with more than two decades of experience.

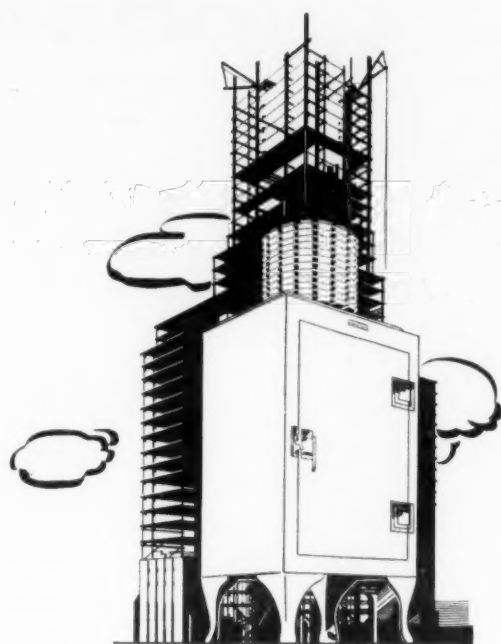
C.I.T. CORPORATION

ONE PARK AVENUE, NEW YORK

A Unit of

COMMERCIAL INVESTMENT TRUST CORPORATION
CAPITAL AND SURPLUS OVER \$90,000,000

Subsidiary and Affiliated Operating Companies with Head Offices in New York
Chicago-San Francisco-Toronto-London-Berlin-Brussels-Paris
Copenhagen-Havana-San Juan, P. R.-Mexico City-Buenos Aires
Sao Paulo-Sydney, Australia-Offices in more than 160 cities.

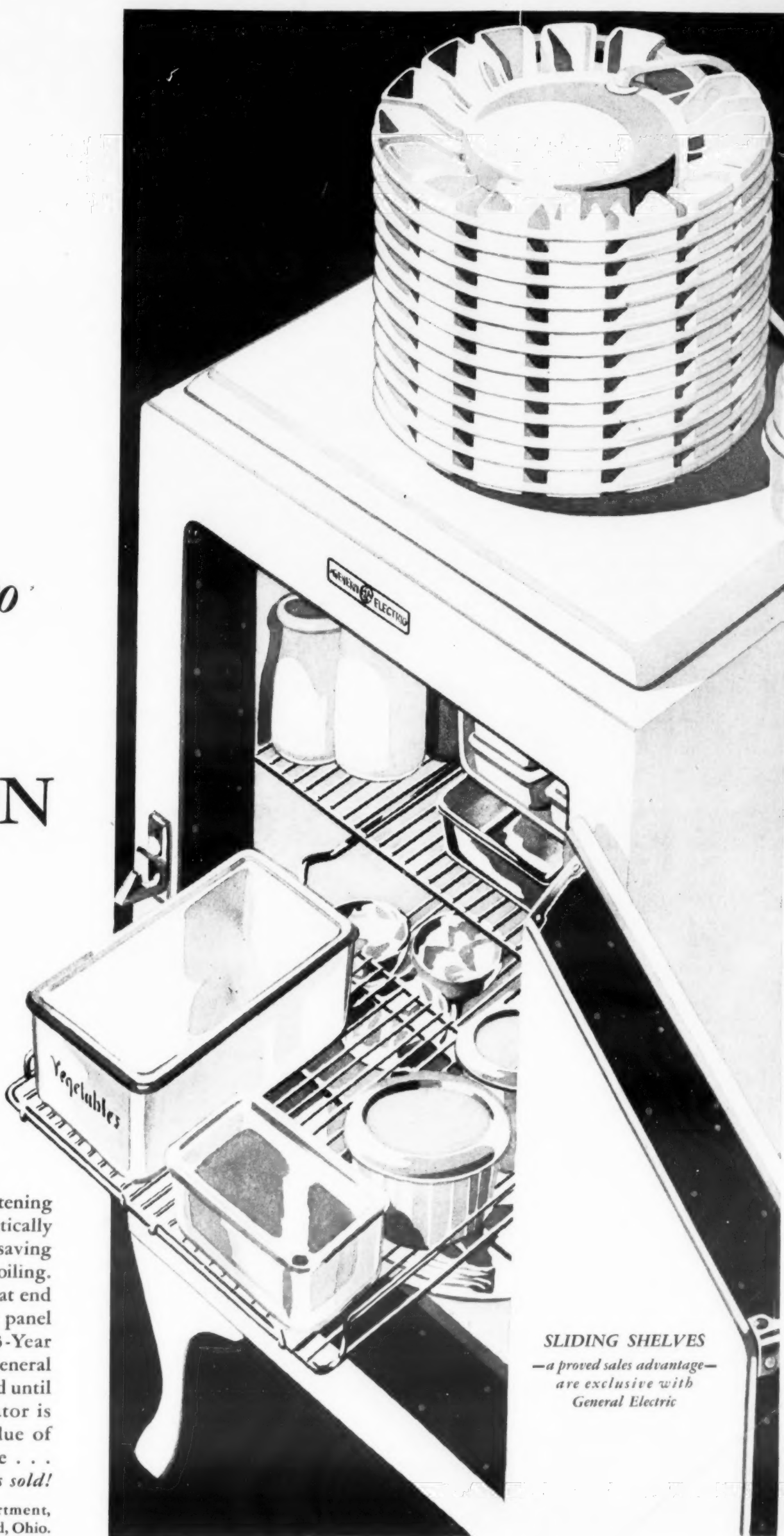


POINT *beneath the surface to* ALL-STEEL CONSTRUCTION

UNDER the gleaming surface of the General Electric is *ALL* steel construction—the rugged durability of skyscraper and bank vault! Every corner is electrically welded—there's not a bit of wood in the entire cabinet! Point to this outstanding General Electric feature, and you point to increased efficiency, to minimized leakage that means lower operating cost—to longer life—to easier sales!

The *ALL*-Steel cabinet is but one of the many features that make the General Electric easier to sell. There's the famous Monitor Top, that glistening Castle of Quiet! Within its steel walls is hermetically sealed all the General Electric's simple, current-saving mechanism, never requiring attention, not even oiling. Sliding shelves, that bring food in plain sight—that end "reaching in" and soiled cuffs. The simple, single panel containing all the control machinery. The full 3-Year Guarantee against service expense—these features General Electric has pioneered, emphasized and popularized until today the General Electric All-Steel Refrigerator is everywhere recognized as the outstanding value of the industry . . . the leader in sales everywhere . . . the refrigerator that sells easily and that *stays sold*!

General Electric Company, Electric Refrigeration Department, Section DF91, Hanna Building, 1400 Euclid Avenue, Cleveland, Ohio.



SLIDING SHELVES
—a proved sales advantage—
are exclusive with
General Electric

Join us in the General Electric Program, broadcast every Saturday evening, on a nation-wide N. B. C. network

GENERAL ELECTRIC ALL-STEEL REFRIGERATOR

DOMESTIC, APARTMENT HOUSE AND COMMERCIAL REFRIGERATORS • ELECTRIC WATER COOLERS

FRIGIDAIRE CONTINUES NBC RADIO PROGRAMS

DAYTON—Frigidaire will be "on the air" over a portion of the NBC network in a new series of radio broadcasts which will be given every Monday, Wednesday and Friday, officials of that corporation announce.

Through the September programs a souvenir offer is being made to housewives. Those who acknowledge the program receive a marketing memo pad in return for data on the kind of refrigeration used in the stores in which she purchases her food.

There are nine entertainers on the 15-minute programs, which are opened with a Frigidaire "theme song." A singing trio, a pianist, xylophone player, violinist, and an accordionist furnish the musical portion of the program. A monologist completes the entertainment.

Radio stations broadcasting the Frigidaire program twice weekly include: WSB, Atlanta; WFBR, Baltimore; WSAL, Cincinnati; WOC, Davenport; WHO, Des Moines; KTHS, Hot Springs; WJDX, Jackson; WJAX, Jacksonville; KPRC, Houston; WHAS, Louisville; WIOD, Miami; WMC, Memphis; WSM, Nashville; WSMB, New Orleans; WEA, New York; WKY, Oklahoma City; WLIT, Philadelphia; WCSH, Portland; WJAR, Providence; WRVA, Richmond; WGY, Schenectady; WFLA, Tampa; WRC, Washington.

In addition to these stations there are 23 other stations of the NBC chain that are broadcasting the program on a partial schedule.

ELECTROLUX WATER COOLERS PLACED IN TEMPLE

BROOKLYN—Persons who visit the Brooklyn Masonic Temple this coming fall and winter will find an Electrolux water cooler in each room.

Bacillus Lodge Mourns



The value of electric refrigeration in terms of germ control was pictured in a window display of Elmira Water, Light & Railroad Co., Kelvinator dealer at Elmira, N. Y.

BIGBEE ELECTRIC CO. SELLS WESTINGHOUSE UNITS

TAMPA, Fla.—The Bigbee Electric Co. of this city has undertaken the distribution of Westinghouse electric refrigerators in Hillsborough and Polk counties, according to announcements made by officials of the latter company. A four-day exhibit and demonstration opened a sales campaign by the Bigbee Co.

Moving Today, Lady?

CLEVELAND—"Are you moving? If so, call us and we will pick up your ice box and install a Servel Hermetic electric refrigerator in your new home."

This is the sales promotion plan adopted by the Cleveland Wurlitzer store, dealer for the unit. Special prizes have been featured.

KELVINATOR CORP. ISSUES FOOD PRESERVATION BOOK

DETROIT—Publication of a booklet on food preservation, "An Invisible World," written by Dr. W. L. Mallman, professor of bacteriology and hygiene at Michigan State College, has just been announced by Kelvinator Sales Corp.

This booklet, intended for consumer distribution, contains 28 pages and 33 illustrations. In simple language it tells of the invisible world existing in food-stuffs, how this world of microbes causes spoilage, illness and even death, and how these microbes can be controlled by refrigeration.

Dr. Mallman took photographs through the microscope to show the comparative results of temperatures above 50° and below.

The "Food Preservation Album," containing 26 illustrations 8½ in. by 11 in. in size, has also been prepared by Dr. Mallman for the use of Kelvinator salesmen in explaining the value of refrigeration.

The scientist has also written a Kelvinator Sales Slants to provide salesmen with the background necessary to explaining the necessity for proper preservation.

Dr. Mallman has been a member of the Michigan State faculty for more than 13 years. His experience has been pressed into public service frequently through investigations of city water supplies and sewage disposal from the bacteriological standpoint.

GRAND RAPIDS FRIGIDAIRE DISTRIBUTOR IN NEW STORE

GRAND RAPIDS—On September 1, F. C. Matthews & Co., west Michigan Frigidaire distributor, moved from its old quarters in the Waters-Klingman building to a new location at 18 Fulton St. E. The opening was attended by several officials of the General Motors Co., Frigidaire department.

The new quarters provide the company with more than double the display space formerly occupied, with large display windows and offices in the rear.

Grand Rapids sales in June this year were 185 per cent of June, 1930, sales while sales during July were 162 per cent of July, 1930, totals.

A regional meeting attended by 85 of the Frigidaire force was held here August 31, at the Rowe hotel. Factory representatives showed promotional moving pictures. A get-together luncheon was a feature of the day, with F. C. Matthews as the presiding officer.

CALIFORNIA ELECTROLUX SALES GAIN 30%

LOS ANGELES—Sales of Electrolux Gas refrigerators by the Southern Counties Gas Co. indicate a gain of 30 per cent for the first seven months of 1931, as compared with the same period last year.

H. W. Geyer, research engineer of the company, now reports more than 2,000 Electrolux refrigerators operating in the homes of customers. It is also estimated that more than 25 per cent of the Southern Counties employees today have gas refrigeration in their homes.

ATLANTA SALES ORGANIZATION TO SELL LEONARDS

ATLANTA—(UTPS)—Warren Co., Inc., newly organized sales firm, has been appointed dealer of Leonard electric refrigerators here. The firm is also handling General Motors radios, Grinnell washing machines, and musical instruments.

O. Warren is president and general manager of the company.

GRIGSBY-GRUNOW CO. STARTS PRODUCTION

CHICAGO—The whine of huge saws and the crunch of punch presses make industrial music at the Grigsby-Grunow Co. factory as the Majestic organization swings into mass production on orders of \$11,000,000 to be delivered to its distributors by Oct. 1.

"Production schedule of Majestic radio receivers for the first week of September exceeds 3,500 per day," said Don M. Compton, vice president and general manager of Grigsby-Grunow Co., recently.

"We have been in production since the 15th of August, gradually building up the output of the eight models which comprise our line for fall and winter season. In view of the fact that distributors placed orders for \$11,000,000 worth of merchandise at retail prices for delivery by Oct. 1, this production will have to be advanced further."

New models in the radio line have been announced by Majestic engineers and they embody three major changes in construction.

The first change is the introduction of the Spray-Shield tube which has a heavy metal coating directly on the wall of the glass and which takes the place of perforated metal "cans." The shield is more effective, according to Majestic engineers, and the metal aids the "screen grid effect."

Another change is "twin power detection" which incorporates two detectors working together to pass the voice and music from the radio frequency stages to the tubes handling audio frequency impulses.

Through the use of a new tube, Majestic has been able to secure super-heterodyne qualities through the use of five tubes. The new tube acts as first detector or "mixer" and oscillator. It takes the place of two tubes.

The new lines of radios include eight models, ranging in price from \$44.50 to \$290.

PLUMBERS, GAS CONCERN REACH TRADE AGREEMENT

LOS ANGELES—A new trade agreement has been reached by the Southern California Gas Co. of Los Angeles, the Electrolux Co., and merchant plumbers in this part of the state for the distribution of Electrolux refrigerators.

Though the new cooperative merchandising plan does not mean that the Utility Bureau removes itself from the field of competitive merchandising, the terms of the new agreement are such that the new dealers have an opportunity to earn satisfactory profits and commissions on sales made on their own premises, through their own efforts or by one of the gas company's salesmen.

The new cooperative plan extends only to the one appliance at present and the deal has been made only with merchant plumbers. Whether or not it is extended to another class of dealer distribution depends upon the success of the present cooperative venture, declares C. M. Grow, manager, new business department, of the gas company.

Under the plan as sponsored by the local utility bureau and the Electrolux organization here, dealer plumbers receive commissions for leads that develop into sales as well as profits on actual sales and profits on installations.

THREE DISTRIBUTORS MOVE OFFICES IN SAN FRANCISCO

SAN FRANCISCO, Calif.—(UTPS)—Three refrigerator distributors here have recently moved their showrooms and offices to new quarters.

The San Francisco distribution branch of Leonard Electric Refrigeration Co. is now in new quarters at 255 Ninth St., with W. H. Jackson as manager.

The W. C. Phillips Co., Inc., distributor of electric refrigerator parts, moved from 1274 Folsom St. to new and larger quarters at 273 Ninth St.

Holbrook, Merrill & Stetson, Inc., manufacturers of "Holbrook" electric refrigerators, display cases, and cabinets, have moved to new quarters at 973 Mission St., establishing their headquarters offices and local showrooms at this address.

COPELAND DEALER NAMED IN CONNECTICUT

NEW HAVEN, Conn.—New Haven Electric Co., Connecticut and western Massachusetts distributor for Copeland refrigeration, has announced the appointment of the Hodgkin Lumber Co., East River, Conn., as a dealer for that area of eastern Connecticut. The Hodgkin company formerly handled Kelvinator.

NORGE DISTRIBUTOR'S SALES GAIN 547%

LOUISVILLE—An increase of 547 per cent in sales for six months has been reported by the Sutcliffe Co., Norgé distributor. The company recently installed 22 5 cu. ft. models in the Guthrie-Coke apartments.

With NORGE you keep what you make



Norge, the electric refrigerator with the Rollator, brings a good dealer profit....

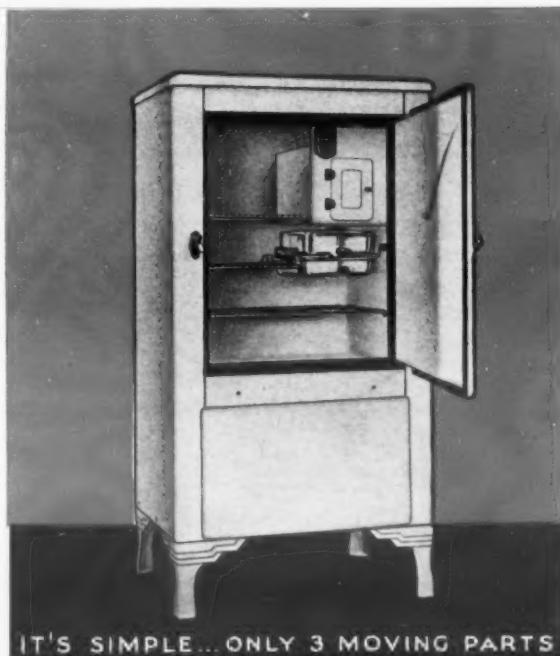
And Norge is no "Indian Giver." What you make you keep. Profit doesn't go back into the refrigerator with a lot of service calls.

Norge requires the veriest minimum of service....its powerful Rollator is the simplest refrigerating mechanism, with only three moving parts, slowly revolving in a permanent bath of protective oil. There is no metal to metal contact in the Rollator....it's almost everlasting.

Performance sells Norge and keeps it sold...it's a short line, with only three standard models, two



THE ROLLATOR



IT'S SIMPLE... ONLY 3 MOVING PARTS

specials and water coolers. Norge is package merchandise, quickly installed....just uncrate and plug in.

Some attractive dealer localities are still open....write, wire or 'phone for details of the worthwhile Norge dealer plan.

Norge Corporation is a division of Borg-Warner Corporation, one of the world's largest makers of automotive parts, including free wheeling.

NORGE CORPORATION, Division of Borg-Warner
658 EAST WOODBRIDGE ST., DETROIT, MICH.

IN CANADA
NORGE CORPORATION OF CANADA, LTD.
235 CARLAW AVE., TORONTO, ONT., CANADA

NORGE

WITH ROLLATOR



It's as easy to keep abreast as remain a pace behind!

The pistol cracks and lithe figures catapult into action. Away they race, each struggling for the place ahead. But there are always those who lack an unseen something that sends others on to break the tape. There are always those just a little behind, fighting as hard to hold their places as the leaders do to win.

It's the unseen something that tells. And refrigerator manufacturers who plan ahead are taking no chances on questionable parts—even where hidden from sight. That is why so many are using Dry-Zero Pliable Slab insulation.

With Dry-Zero in their refrigerators, the insulation will never be the handicap that may cost a win. Throughout the life of the refrigerator there is always the assurance of superior performance.

Consider Dry-Zero in relation to the important qualities of insulation as set up by engineers of actual refrigerator manufacturing organizations:

THERMAL EFFICIENCY	LIFE	EFFECTS OF MOISTURE
FACTORY APPLICATION	ODOR	

Dry-Zero is superior in every respect as proved not alone by laboratory tests at the U. S. Bureau of Standards and various national institutes, but by use in thousands of domestic refrigerators, refrigerated trucks and railroad refrigerator cars. It has the highest thermal efficiency; it will outlast the refrigerator; the Dry-Zero fibre is so resistant to moisture that it forms the filler for U. S. Navy life belts; its sealing flange and cut-to-size measurements provide instant installation with sufficient resilience to counteract assembly irregularities; it can never absorb or give off odors.

Progressive manufacturers are keeping abreast by assuring continued efficient, economical operation of their refrigerators with Dry-Zero insulation.

DRY-ZERO CORPORATION

Merchandise Mart - Chicago, Illinois

Canadian Office - 465 Parliament Street, Toronto

DRY-ZERO

THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN

Frigidaire Officials Conduct Fall 'Pep Meetings'



J. A. HARLAN
Vice President in Charge of Sales



R. B. AMBROSE
Manager, Retail Commercial Division



B. J. VANDOREN
Commercial Sales Manager



C. A. COPP
Assistant General Sales Manager



C. E. QUIGLEY
Director, Water Cooler Division

E. H. SCHAEFER CORP. BUYS STOPHLET G. E. FRANCHISE

MADISON, Wis.—D. S. Stophlet, Inc., distributor for General Electric refrigerators, has sold its interest in electric refrigeration to E. H. Schaefer Corp. of Milwaukee, effective Sept. 1. Stophlet will be G. E. heat control distributor.

When
you drive to
DETROIT



...stop at Hotel
Fort Shelby.
The Fort Shelby
Garage is conveniently located

to the Hotel. Automobiles of guests arriving or leaving are called for and delivered without service charge. If servicing is required your car will receive the careful attention of skilled mechanics for a most economical tariff. This service is just another proof of Hotel Fort Shelby's ability to make your Detroit visit a pleasant one. ¶ You'll be delighted, too, with Hotel Fort Shelby's beautiful, commodious rooms... its tempting delicious foods... inviting lobby... enviable location and attractive rates. ¶ 900 units... all equipped with servitor and private bath. Rooms as low as \$3.00 per day... suites \$10 and upwards.

Two models have been installed for display operation in the showrooms of the Kelvinator Sales Corp., here. The models "A" and "B" shown will sell for \$380, while the "T" model will sell for \$410.

Motorists are relieved of their automobiles at the door without service charge. Write for free road map, and copy of "Aglow with Friendliness," our unique and fascinating magazine.

Hotel Fort Shelby
E. J. BRADWELL, Manager
DETROIT

"AGLOW WITH FRIENDLINESS"



GEORGE S. JONES, JR.
Utility Division Manager



H. C. JAMERSON
Distribution Sales Manager



J. J. NANCE
Sales Promotion Manager



L. A. CLARK
Sales Planning Department

KELVINATOR HANDLES OIL BURNER IN DETROIT STORE

(Concluded from Page 1, Column 4) sales, and in the stimulus that it will provide to the activity of salesmen. "The present companionate experiment is purely a local matter, no other Kelvinator distributors having taken on the line," Mr. Barber states. "Officials of the Kelvinator plant here are watching the experiment with considerable interest, with an eye to obtaining data on the possibilities in types of specialty merchandise other than refrigerators," he reports.

The Toridheet burner is manufactured by the Cleveland Steel Products Co. It has a rotary burner, is noiseless and is automatically controlled. Models are made for all types of domestic and commercial heating plants—steam, vapor, hot water or warm air.

Two models have been installed for display operation in the showrooms of the Kelvinator Sales Corp., here. The models "A" and "B" shown will sell for \$380, while the "T" model will sell for \$410.

BY ALL MEANS COME DOWN BY
THE SEA THIS FALL

HOTEL STRAND

Pennsylvania Ave. and Boardwalk
ATLANTIC CITY

Low fall rates make it possible for you to live at this splendid beach-front hotel cheaper than you can live at home.

Prices as low as \$6 per day, single, with private bath and three Strand meals. Complimentary teas daily. Music. Salt water baths.

Special Weekly Rates
Also European Plan

ATLANTIC CITY
IS GLORIOUS

Let us know your requirements and we will gladly please you

T. E. Randow, H. B. Richmond,
Mgr. Prop.

Frigidaire Corporation Reduces Selling Prices On Household, Commercial Units

(Concluded from Page 1, Column 1) pects are to receive "added profits insurance" proposals.

Inscribed with the name of the prospect, one of these "insurance policies" looks very much like the real thing. Within the policy are printed sales arguments calculated to demonstrate that the purchase of a Frigidaire will insure the owner against food losses and sickness, and will permit savings by means of economical food handling.

Salesmen were also shown a new "interview getter" (marketing memo pad), a small and low-priced movie projector to help sell prospects in their own homes, and a sales kit which includes everything from a name plate and hardware to ice cube trays and samples of insulation and porcelain enameling.

Three new prospect slide-films for this projector were introduced. Titles of these slide-films are: "Healthy, Wealthy, and Wise," "Heap O' Livin'," and "Value."

Emphasis was laid during the meeting on the utilization of users. By means of the "Frigidaire user's good will reward plan," the conversion into sales of prospects furnished by users will be rewarded with cash or merchandise.

"During the last four months of 1931, more than 270,000 refrigerating units will be sold, making a total volume of

\$87,500,000 worth of business for somebody—and you must get your share of that business," the various groups were told.

Among the best bets for fall business, the speakers at these meetings declared, are apartment houses and food stores.

That we'll wait-until-spring argument was effectively bombarded by a talking picture, "Cold Cash," shown at all the gatherings.

Fall selling efforts will be backed by the largest autumn advertising program in Frigidaire history, it was announced.

Following is a list of the cities in which these regional "fall pep meetings" were held. Cities are grouped together with the Frigidaire headquarters man who led the meetings there. They are:

J. A. Harlan, leader: Norfolk, Ocean Beach Hotel, Aug. 31; Philadelphia, Benjamin Franklin Hotel, Sept. 1; New York, Hotel Pennsylvania, Sept. 2; Boston, Statler Hotel, Sept. 3.

C. A. Copp, leader: Columbus, Deschler Hotel, Sept. 2; Dayton, Miami Hotel, Sept. 3; Lexington, Phoenix Hotel, Sept. 4; Cleveland, Statler Hotel, Sept. 8; Detroit, Statler Hotel, Sept. 9; Fort Wayne, Anthony Hotel, Sept. 10.

George S. Jones, Jr., leader: Baltimore-Washington, Lord Baltimore, Sept. 1; Syracuse, Syracuse Hotel, Sept. 2; Buffalo, Jenesee Park, Sept. 3; Pitts-

burgh, Pittsburgh Athletic Club, Sept. 4; Roanoke, Hotel Roanoke, Sept. 9.

L. A. Clark, leader: New Orleans, Roosevelt Hotel, Aug. 31; Birmingham, Tutweiler Hotel, Sept. 1; Atlanta, Biltmore Hotel, Sept. 3; Jacksonville, Mayflower Hotel, Sept. 4.

H. C. Jamerson, leader: Seattle, Washington Hotel, Aug. 31; Portland, Multnomah Hotel, Sept. 1; San Francisco, St. Francis Hotel, Sept. 3; Los Angeles, Alexandria Hotel, Sept. 4.

R. B. Ambrose, leader: Sioux City, Martin Hotel, Aug. 31; Des Moines, Ft. Des Moines Hotel, Sept. 1; Omaha, Blackstone Hotel, Sept. 2; Kansas City, Baltimore Hotel, Sept. 3; Wichita, Allis Hotel, Sept. 4; Joplin, Connor Hotel, Sept. 5.

J. J. Nance, leader: Oklahoma City, Oklahoma Club, Sept. 2; Ft. Worth, Texas Hotel, Sept. 3; San Antonio, Plaza Hotel, Sept. 4; Galveston, Galvez Hotel, Sept. 5; Memphis, Chisca Hotel, Sept. 9.

B. J. Vandoren, leader: St. Louis, New Jefferson Hotel, Aug. 31; Davenport, Blackhawk Hotel, Sept. 1; Peoria, Pere Marquette, Sept. 2; Indianapolis, Lincoln Hotel, Sept. 3.

C. E. Quigley, leader: Grand Rapids, Rowe Hotel, Aug. 31; Chicago, Knickerbocker Hotel, Sept. 1; Milwaukee, Schroeder Hotel, Sept. 2; St. Paul, St. Paul Hotel, Sept. 3.

KULAIR Electrical Refrigerating Products

Simplicity, quality, efficiency and capacity unequalled. A size for every use.

Compressors from 95 Lbs. to 4300 Lbs. I. M. C.

Condensing Units from Small Domestic to Large Commercial Capacities.

AIR COOLED WATER COOLED
METHYL CHLORIDE or SULPHUR DIOXIDE

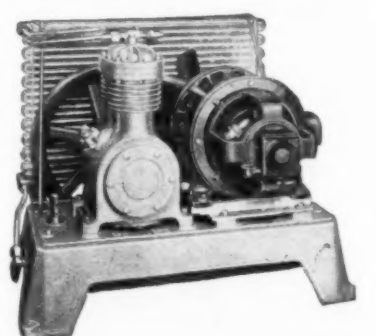
**POLICIES
PRODUCTS
PRICES**

Providing Proper Profit To All Distributors.
WRITE FOR FULL INFORMATION TO

KULAIR CORPORATION PHILADELPHIA, PA.



NO. 1300 COMPRESSOR
Single Cylinder 1½ x 1½
300 to 425 R. P. M.



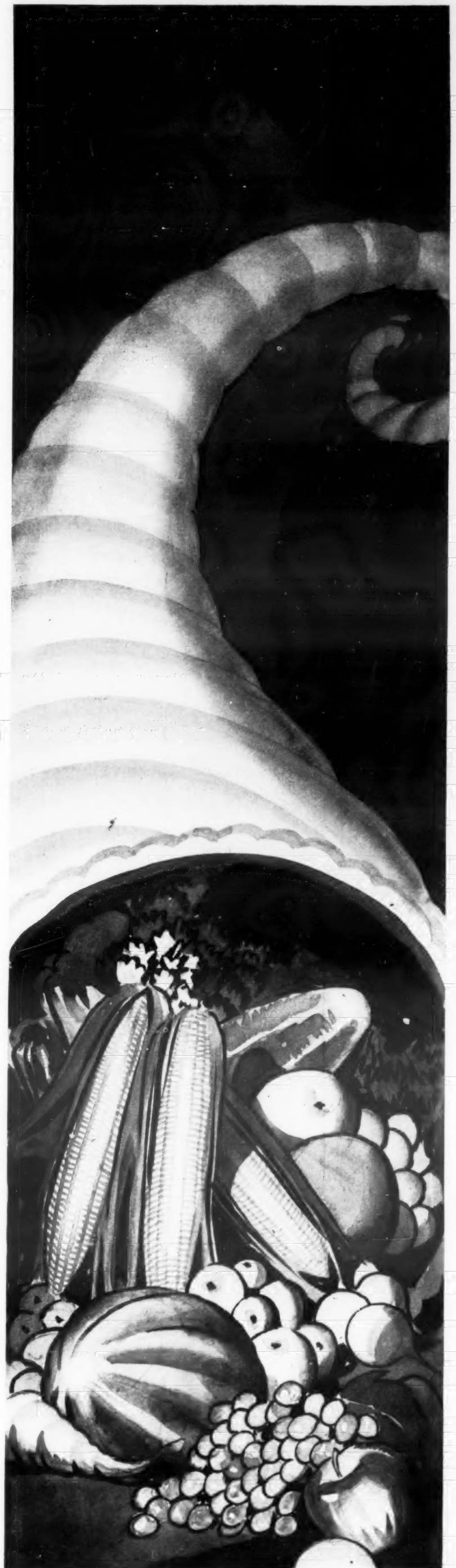
GREAT YEARS AHEAD!



ELECTRIC REFRIGERATION has come into its own. In the Pullman cars headed west—in the clubs down East and on the golf links in Seattle—over the bridge tables in Boston—and under the magnolias down through the Old South—EVERYWHERE—people are talking—and *buying*—electric refrigeration. . . . Radios and motor cars stand on the side lines—and throw a hat or two into the air—as this latest giant industry rides down Fifth Avenue and Main Street in the golden carriage of national popularity. . . . The Industry waded into the depression—with both feet—and found a gold mine—with veins, rich in ore, deep and wide. And the surface has not as yet—been scratched! . . . Kelvinator—pioneer—looks back over seventeen years, and smiles—looks forward to the next seventeen—and *smiles again!* . . . Great Years Ahead!

Kelvinator Corporation, 14245 Plymouth Road, Detroit, Mich.
Kelvinator of Canada, Ltd., London, Ontario Kelvinator Limited, London, England

Kelvinator



MERCHANDISING SECTION ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

Published Every Week by

BUSINESS NEWS PUBLISHING CO.

550 Maccahees Building, Woodward Ave. and Putnam St.
Detroit, Michigan. Telephones: Columbia 4242-4243-4244

Subscription Rates:

U. S. and Possessions and countries in Pan-American
Postal Union: \$2.00 per year; 3 years for \$5.00

Canada: \$5.00 per year

All Other Countries: \$2.25 per year; two years for \$4.00
Advertising Rates on Request

F. M. COCKRELL, Publisher

GEORGE F. TAUBENECK, Editor

JOHN T. SCHARFER, Engineering Editor

JOHN R. ADAMS, Assistant Editor

PHIL B. REDEKER, Assistant Editor

FREDERICK W. BRACK, Advertising Manager

GEORGE N. CONGDON, Business Manager

Member, Audit Bureau of Circulations

Copyright 1931 by Business News Publishing Co.

VOL. 6, No. 1, SERIAL NO. 129, Part 1, Sept. 9, 1931

Editorial Aims of the News

To encourage the development of the art.

To promote ethical practices in the business.

To foster friendly relations throughout the industry.

To provide a clearing house for new methods and ideas.

To broadcast the technical, commercial and personal news of the field.

Apartment House Sales

ONE department of electric refrigeration sales upon which distributors and dealers are pinning their hopes for good volume this fall is that which supplies apartment houses. Sales to owners of multi-family dwellings are generally made in the autumn, and predictions have been made by many sales managers of apartment house divisions that the fall of 1931 should bring one of the best volumes of all time to their departments.

Landlords are in a particularly receptive mood to salesmen's stories this year, it is declared—not because they made a lot of money last year, but because they didn't. When the manager of an apartment house fails by a considerable margin to fill it up, when his proportion of vacancies is keeping him awake nights, he will likely be amenable to almost any sound suggestion for making his housing facilities more attractive to "cliff dwellers."

Expanding Market

So successfully has the industry established electric refrigeration as a necessity for apartments that none is now considered modern or fully equipped without it. Even so, there still remains a huge market for electric refrigeration in the apartment house field, particularly in the smaller houses and the low-rental classes. From these groups salesmen are expecting to bring back a heavy volume of business during the coming months.

Still another opportunity opening up for apartment house division salesmen this season is that of replacements. In earlier days, when the rush to get electric refrigeration into apartments began, price was such a factor that cheap boxes were purchased and cheap installations were made. Now that tenants have had a chance to try these inferior installations for awhile, they have begun to demand better service, greater capacity, and improved appearance. And the effect of this demand upon landlords is making replacements quite an item in the fall business of many distributors.

Debt to Multiples

No matter how hasty and awkward and cheap some of the earlier multiple systems were, the industry owes them a considerable debt. They made electric refrigeration popular. Young couples became accustomed to the convenience and better refrigeration afforded by multiple systems in apartment houses, and when these families moved out of apartments into their own homes, they insisted upon having electric refrigerators.

Others who visited friends living in apartments were told about the luxury and satisfaction of electric refrigeration, and so the good word was

spread. And now that the installation of multiple systems has become almost an exact science, and since comparatively noiseless single units for apartments have been developed, apartment dwellers are getting the same kind of dependable refrigeration sold to home owners. Thus the gospel continues to go forth from those who live in apartments.

It would be hard to calculate the effect that the introduction of mechanical refrigeration into apartment houses has had upon the market for all types of refrigeration equipment. Not only have those who lived in apartments told others about the good qualities of modern refrigeration, but they have begun to inquire into the refrigeration equipment of the grocery stores, the meat markets, the delicatessens, and the confectioneries which sell them food. They have insisted that the food they buy be kept at sufficiently low temperatures before they take it home to put in their own refrigerators. And thus they have helped batter down sales resistance of prospects for commercial refrigeration equipment.

Keen Competition

The ready acceptance which electric refrigeration has enjoyed among apartment house owners and dwellers has drawn considerable numbers of building suppliers into the business. Especially in the larger cities there has sprung up a number of electric refrigeration firms which operate only locally, supplying "private brand" refrigeration to apartment houses. Inasmuch as this type of entrepreneur often knows his market and his potential customers pretty well, he has helped make competition unusually keen in the apartment house field.

In spite of the struggles and the throat-cutting in this division, however, managers of apartment house departments of electric refrigeration sales organizations seem confident that there will be plenty of business for everyone this fall. And a high apartment house sales volume should help the industry reach its quota of one million electric refrigerators for the year.

GLEANINGS FROM RECENT PERIODICALS

MRS. Consumer buys an electric refrigerator because it gives her service, convenience and luxury which she cannot obtain from an ice box. She wants it and therefore she pays the price asked for it. And this is true of all electrical appliances and equipment. Because electrical appliances are costly to develop and produce they must be sold at prices high in comparison with the goods they replace. A sad iron can still be bought for a few cents. An automatic electric iron sells for \$5.75 and up. Nobody questions the price since the value is apparent.

No electrical appliance has ever been marketed because it was cheaper than something else. The electrical product with the greatest number of performance features is the one which most rapidly achieves market acceptance. It also makes the most friends for itself and engenders the widest word of mouth advertising. The price should be whatever will cover, with a profit, the cost of production, the cost of market promotion and the cost of distribution, including margins for the retailer that will permit him to do a selling job.

This is not only logical but is confirmed by the experience of the industry with every device it has produced and marketed.

Why then throw logic in the waste basket and turn our back on experience?

Many utility merchandisers are doing just that today when they demand cheaper ranges. They are asking for electric ranges that will compete in price with a gas range. Manufacturers to meet this demand are shipping ranges that are stripped of the distinctive features that lift the electric range out of all competition. And these stripped ranges of insufficient capacity and without automatic control devices satisfy nobody—maker, seller or user. They cannot be as cheap as a gas range in price and they cannot give that distinctive quality of service that should make every user a booster. They cost as much to sell as the better models and there cannot possibly be enough margin in the price to advertise and sell them properly at a profit.

Utilities now offering an allowance for range wiring connection have been accused of cutting prices through this practice. Yet the companies who first initiated this policy will extend the allowance only when a full automatic range is installed. It is their experience that satisfactory range service to the customer depends on a high-class, high-price, many-featured product.

And they are right. The public will buy the electric range, pay the price and brag about it to their friends for the same reasons they have bought and paid for and bragged about the electric refrigerator. And those reasons are not price reasons.

The range is ripe for industry promotion. It should be the load, sales volume and profit builder of tomorrow. But it cannot be unless we stop fingering price tags on gas ranges. It cannot be without higher prices, every dollar justified by extra conveniences and unequalled sales features. Without higher prices we can have neither the quality, the margin nor the promotional money necessary to do the job.—*Electrical Merchandising.*

Announcement

1932 Directory To Be Issued in Book Form

The ANNUAL REFRIGERATION DIRECTORY for 1932, listing all manufacturers of refrigeration equipment, parts, accessories, materials, and supplies, will be issued in the form of a book approximately 6 by 9 in. in size.

This convenient style has been adopted in order to provide for a greatly increased volume of valuable buying information.

The 1932 directory will list all manufacturers three ways: alphabetically, geographically, and by classification of products.

All sources of supply for everything used by the refrigeration manufacturer, distributor, dealer and service station will be made available as a guide to buyers.

The directory will be edited by John Dittler.

An Editor on Wheels

Stories of Interesting PLACES in the Refrigeration Industry

By GEORGE F. TAUBENECK

Dayton, Ohio

No city I visit impresses me as being so youthful, so new as Dayton. It looks as if it had just sprung up from the ground.

Scarcely anything about it seems old-fashioned. It does not have the mixture of nineteenth and twentieth century architecture so inevitable in other cities.

And even the people seem to belong to the twentieth century only—spend an hour uptown some night, and you'll come to the conclusion that there is a 6 o'clock curfew law in Dayton for all men and women over 30 years of age.

Or you may wonder if the dictum misquoted from Dr. William Osler ("all human beings over the age of 50 ought to be chloroformed") is in force there as a city ordinance.

Boys and girls of the teen age and the early twenties throng the streets.

Economic postponement of marriage does not seem to be the rule there, for one soon notices the extraordinary number of quite young parents leading toddling (or carrying swaddling) infants.

One also notices, with approbation, the bright, clean, ivory-soap-and-sunshine faces of Dayton's youth.

They haven't the hard, disillusioned, half-contemptuous aspect which is so often affected by youngsters in busy industrial cities. Theirs is a carefree, unspoiled, open-air sort of joy.

In keeping with the youthful atmosphere of Dayton, its stores carry last-minute-style merchandise—and sell it.

One suspects that the clothing stores have New York representatives who keep the telegraph wires hot, and who make frenzied dashes to express offices with rush-order goods.

Again in keeping with the youthfulness and newness and freshness of Dayton, the automobiles are, for the most part, recent models.

There is a paucity of used car lots, and scarcely any vehicles of the "trap" variety or of outmoded vintage can be found on the streets.

A count of 47 cars (exclusive of new Chevrolets, Plymouths, and Fords) passing a particular street corner showed 21 V-shaped radiators.

As we mentioned in a previous impression of Dayton, the residential "show district" of town, the section of mansions and magnificent gardening, is populated with comparatively young families, and was built with first-generation fortunes.

In the rise of the National Cash Register Co., Delco, Frigidaire, and the other manufacturing and selling organizations which took their cue and their method from the book of John H. Patterson, many men made money rapidly.

They have remained in Dayton, and are investing their money there (indeed, they are still laboring there).

The second generation of these hard-working pioneers in the field of specialty selling, and of the factory workmen who made the products to be sold, is now rising up to give Dayton another big push.

And a clean-limbed, clear-eyed generation it is. Athletics are taken seriously, even avidly by these oncoming citizens.

And as in many American cities, the athletic activities of the local schools are among the most important happenings in town.

In Dayton there are six public and parochial high schools, and a university (University of Dayton).

Equipped with large gymnasiums, swimming pools, playing fields, and health-food cafeterias, these schools

are dedicated to the strenuous life and the vigorous body.

Adult education is provided by the University of Dayton and Y. M. C. A. night schools, and by the Miami Jacobs Business College, which is authorized by the state to grant degrees.

Twenty miles east of Dayton is Antioch college, which is conducting an educational experiment of some note.

Here academic work is combined with practical experience; the textbook shares attention with the hammer and the adding machine.

Half the time the students attend classes. During the other half they work at practical jobs in more than 150 factories, farms, business houses, and other institutions.

Amusements are simple. There are half a dozen good movie houses, and a burlesque show.

Occasional wrestling and boxing comprises the only professional sports offered. Golf, of course, and tennis, for amateurs.

A trio of amusement parks, one containing a zoo, provides picnic grounds and facilities for family and business outings and festivities.

Hills and Dales Park, which has 320 acres devoted to golf links, tennis courts, baseball diamonds, a children's playground, and camping grounds, was given to Dayton by the late John H. Patterson.

Another gift to Dayton which provides educational recreation is the Art Institute, presented by Mrs. Harrie G. Carnell to the city. In addition to the art exhibits and the customary school for would-be whistlers, organ recitals are given there.

Of course there is a museum, and a Masonic temple, and a courthouse—this one distinguished by its modified Greek architecture and a circular stone staircase.

Just now, however, the most interesting public structure is the Dayton Industries Building, which houses sales and industrial exhibits.

Veterans of all wars are housed at the National Military home in Dayton. One hears a great deal more, however, about Wright Field and the Dayton Airport, where air-minded young men gather to learn about the skyways.

Wright Field, gift of the city to the United States government, is the home of the materiel division of the U. S. Army Air Corps, and has experimental, testing, and development "laboratories."

Dayton has never forgotten the flood of 1913. Right now a \$30,000,000 flood prevention system is under construction.

These "conservancy dams" are located in Englewood, Taylorsville, Huffman, Germantown, and Lockington, assuring the entire Miami Valley of adequate protection against high waters.

For those who are annoyed by salesmanship in a bookstore—one place where no shopper should ever be given a suggestion unless he asks for one—the store owned by Pettibone, McLean, Inc., is a haven.

Prominent in the display window of this bookshop is a sign bearing a message which is followed religiously by the management. With the quoting of this message, we rest the case for Dayton.

"Drop in daily and see the new books. If you can resist the temptation to buy, we are satisfied."

"Browse as long as you like and wherever you like."

"Sit down if you can find a chair. We have never found that tobacco smoke injures the books."

"We won't feel hurt if you prefer to find your own books. Let us find the ones you can't find."

"Cozy room and a chair in the back for you—no better place in town to await a friend who is habitually an hour late."

Mr. Retailer.. Westinghouse makes your profits grow ... and keep on growing!



TO LEFT

Model WL65—Finishes: Exterior lacquer, interior porcelain; Overall Dimensions: width 31 $\frac{7}{8}$ in., depth 22 in., height 59 $\frac{7}{8}$ in.; shelf area 11.40 square feet; usable interior volume 7.28 cubic feet; ice making capacity 96 large cubes—11 pounds. Has hermetically sealed, trouble-proof Quiet Mechanism; conveniently flat, usable Buffet Top; Arm-high 7-speed Temperature Selector; Automatic Built-in Watchman and other Westinghouse "Completely Balanced" features.

TO RIGHT

Model WL85—Finishes: Exterior lacquer, interior porcelain; Overall Dimensions: width 38 $\frac{7}{8}$ in., depth 22 $\frac{1}{2}$ in., height 59 $\frac{7}{8}$ in.; shelf area 14.1 square feet; usable interior volume 8.98 cubic feet; ice making capacity 96 large cubes—11 pounds. Has hermetically sealed, trouble-proof Quiet Mechanism; conveniently flat, usable Buffet Top; Arm-High 7-speed Temperature Selector; Automatic Built-in Watchman and other Westinghouse "Completely Balanced" features.

**A MODEL FOR
EVERY HOME
AND BUDGET**



THIS phenomenal Westinghouse Refrigerator success is not an idle claim. It is a nation-wide movement in favor of Westinghouse and hourly increasing sales prove it!

Already many dealers are way ahead of their forecasts. And there are equally gratifying prospects in view for the immediate future.

**ANYONE CAN AFFORD
A WESTINGHOUSE NOW!**

In order to make the benefits of Westinghouse Refrigeration open to new and larger markets, Westinghouse recently introduced two new popularly priced models! They are the 7.28 cubic foot capacity WL65 at \$240 f.o.b. factory, and the WL85, 8.98 cubic foot capacity at \$340 f.o.b. factory. What was the result?

Spirited buying by thousands of families who never thought they could enjoy a Westinghouse with all its "Completely

Balanced" features for so low a price!

AN EXCEPTIONAL OPPORTUNITY FOR DEALERS

Not in years has there been such a profit opportunity in the electrical field. And every dealer owes it to himself to find out what rewards the Westinghouse Refrigerator franchise offers him!

INCREASED NATIONAL ADVERTISING

To carry the Westinghouse story into millions of homes Westinghouse is launching an increased national advertising campaign in leading national publications! Big double spreads in color with direct hard-hitting messages! But, that isn't all—Westinghouse supports the dealer with actual merchandising assistance. Smart, colorful sales literature, and proved successful dealers' plans, tested coöperative newspaper adver-

tising campaigns, inviting window displays, complete mat service and unlimited merchandising counsel!

A FEW TERRITORIES STILL AVAILABLE —FIND OUT ABOUT YOUR OPPORTUNITY!

Westinghouse Refrigerator franchises are quickly being signed all over the country by aggressive dealers. A limited number are left—maybe in your own locality! Write immediately to find out how you, too, can get started at once on the road to bigger, ever-growing profits with the new Westinghouse Refrigerator. Use the coupon, or better still, send us a telegram.

WESTINGHOUSE ELECTRIC
AND MANUFACTURING COMPANY

Merchandising Department, Mansfield, Ohio

Please send me details of the Westinghouse Refrigerator Franchise.

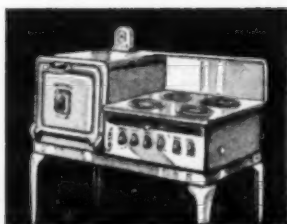
Name.....

Address.....



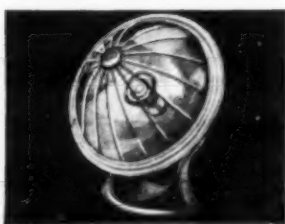
Westinghouse Refrigerator

The Name "WESTINGHOUSE" is your guarantee



Westinghouse Flavor Zone Electric Ranges for every home are profitable items for dealers.

These ranges offer the housewife cooking equipment modern as the minute.



A breath of summer in mid-winter! One reason why this new Westinghouse Cozy Glow is a popular seller.

It is an ideal, portable heat supply for frosty mornings in bathroom or nursery.



What woman does not want a Westinghouse Master-Matic Iron? The country's leading iron.

The smart Westinghouse Columaire Jr. De Luxe increases profits for aggressive electrical dealers.



Tokyo Refrigeration Dealer Uses Sales Promotion Effectively

TOKYO—In the land of cherry blossoms, where the enfranchised distributor for General Electric refrigerators is the Tokyo Electric Co., no stone is left unturned in the matters of sales promotion, advertising, and creation of desire on the part of the public for refrigerators.

According to word received from C. F. Neave, manager of the International General Electric Co., Inc., there is not a more progressive European distributorship, perhaps, than the Tokyo Electric Co.

Sales promotion material is decorated, catalogs used by the electric refrigeration department in the United States are used there after being reprinted in Japanese, and the *Silent Hostess* magazine, with American illustrations and Japanese printing, also is used to a large extent. Japan, according to Mr. Neave, is rapidly becoming electric refrigerator conscious.

The Ginza show room of the Tokyo distributorship, while not an extraordinarily spacious place, is decorated and is clean, and in this show room will be found every type of General Electric refrigerator manufactured.

In connection with this show room there are test racks where they have alternating and direct current lines. Then they have spray booths, in each of which there is a revolving table placed so that it will make it easy to refinish any machine that needs this process.

Another show room has been opened in the Bentendori district in Yokohama, and of late two other display rooms have been opened in Osaka and Kobe.

Probably 65 or 70 per cent of the owners in Japan install their electric refrigerators, not in the kitchen or in the dining room, but in the front hall

of their house, or in the living room. This is done because the Japanese is quite proud of an electric refrigerator, and he never misses an opportunity to display it and boast about it to his neighbors.

As yet the Japanese distributors have not established home service departments, like those organized in all parts of the United States, but, according to Mr. Neave, because of the advancement of the Tokyo Electric Co., it is expected that before long this distributorship will have a home service department and will offer home service demonstrations to prospective buyers of General Electric refrigerators.

KELVINATOR DISTRIBUTOR SHOWS 300% GAIN

SEATTLE, Wash.—Schoenfeld's furniture stores at Seattle and Tacoma, Wash., western distributor for Kelvinator refrigerators, have experienced a 300 per cent increase in sales during 1931. Extensive advertising campaigns are carried forward by the Schoenfelds' stores in the northwest for these refrigerators.

DISTRIBUTOR OPENS BRANCH STORE AT BRISTOL, CONN.

BRISTOL, Conn.—Newton-Parsons Co., Hartford, distributor of General Electric refrigerators in Hartford county, has leased a store at 8 Memorial Blvd. here for use as a branch salesroom. Polhill's, Inc., furniture store at 74 Main St., will continue to act as display dealer for General Electric in Bristol.

Bill Seroy Takes the Throttle



William J. Seroy, western coast representative for Trupar Mfg. Co., personally brought in a trainload of Mayflower electric refrigerators for Kierulff & Ravenscroft, distributor.

MOHAWK ADVERTISING CHIEF COMPLETES TOUR

NORTH TONAWANDA, N. Y.—J. H. Wimberly, Jr., advertising manager of the All-American Mohawk Corp., has completed a five weeks' tour of the middle west. He visited in Illinois, Indiana, Minnesota, Iowa, Wisconsin, Nebraska, and Michigan.

G. E. SALES FORCE HOLDS PICNIC AT SEASHORE INN

NEW HAVEN, Conn.—More than 100 employees of the three retail branches of Modern Home Utilities, Inc., General Electric refrigerator distributor for Connecticut, held an outing recently at Ye Castle Inn, Cornfield Point, Saybrook.

Both women and men participated in an extensive athletic program, featured by a baseball game between the New Haven salesmen and a picked nine representing Waterbury and New London. A number of swimming events were staged under the direction of Frederick Myer, Waterbury, chairman of aquatics. A shore dinner followed the sports program.

Leland L. Stacy was in general charge of the affair, while General Manager J. E. Neely, Waterbury, acted as host. George Trainor captained the New Haven ball team, while Merrick B. Lamb, manager of the New Haven retail division, was umpire.

SAN FRANCISCO ABSOPURE STORE DAMAGED BY FIRE

SAN FRANCISCO, Calif.—(UTPS)—A fire originating in the basement of an adjoining crockery store damaged Cochran & St. John, Ltd., recently.

The firm distributes the Absopure electric refrigerator line. The basement was filled with supplies of gas tanks filled with methyl chloride gas, but the fire was checked before reaching the tanks. The fire destroyed the crockery store and gutted the Pantages hotel.

LEAGUE HANDLES R. I. COOPERATIVE DRIVE

By H. E. Dawson,
(Secretary, Rhode Island Electrical League)

PROVIDENCE, R. I.—When the question of establishing an electric refrigeration bureau for Rhode Island was considered, the league was immediately considered as the only logical vehicle to be used to carry out this plan. We have a background of nearly 10 years of continuous history and wherever any job for the benefit of all branches of the industry has been undertaken the league has done the work.

All of the essential refrigeration interests are members of the league, including light and power companies and dealers so that practically no organization work was necessary to carry out the plans submitted to us by national headquarters.

Our campaign work includes coverage of all Rhode Island readers in weekly advertising in important newspapers with 93,000 circulation—bill posting of 90 locations in important locations—institutional copy on backs of monthly bills of utilities. A spring "tie in" of refrigeration exhibiting nine different makes of refrigerators and our electrical and radio exposition with refrigeration dominating this fall. Dealers from all the principal cities and towns purchased tire cases and other materials.

Our national quota of five per cent of total meters set a high quota of 8,500 pieces for us and our own quotas were about 6,500 pieces. As of June 15 we had sold nearly 3,000 pieces which is not up to national quota figures but our people are reasonably satisfied considering conditions and feel that with our cooperative efforts we have done a good job for the benefit of all.

ITALIAN UTILITY STUDENT VISITS KELVINATOR PLANT

DETROIT—Michele Ricci, a young Italian merchandising expert, who has been sent out by the Societa Adriatica di Elettricit  di Venice to study the methods used by American Public Utilities in developing the sale of electrical power consuming equipment and appliances, visited Kelvinator Corp. recently.

Mr. Ricci, who formerly was private secretary to Senator Marconi of wireless fame, is studying the merchandising departments of the Consumers Power Co., at Grand Rapids and Jackson, Mich., and later will proceed to Guatemala to visit the properties of Electric Bond and Share Co. there.

He expects also to visit Mexico before returning to Europe. Mr. Ricci was accompanied by Mr. Purdy of the Jackson office of Consumers Power, and both were guests of Export Manager R. A. Lundquist.

NORGE DEALER APPOINTED

TERRE HAUTE, Ind.—The Jensen Bros., Brunswick shop, has been appointed dealer for the Norge electric refrigerator. Heretofore, the Norge has had no representative in this section of the state.

YOUR NAME Will Appear in the Biggest Newspaper Campaign Ever Used to Advertise Ice Trays

THE AMERICAN WEEKLY
Sunday October 11, 1931

**End All This Mess.
Take Ice Out
This Easy Way!**

Easy-Out
ALL-METAL TWIN ICE TRAY

No Need to Hold It Under the Water Faucet
Just Press Ends of Grid—Ice Pops Out

YOUR NAME HERE

If you order 15 or more
Easy-Out
ALL-METAL TWIN ICE TRAY
before September 15

A full-page, four-color Easy-Out All-Metal Twin Ice Tray advertisement will appear Sunday, October 11th, in the American Weekly—which, as you know, is the magazine section of 17 Sunday Newspapers with 5,500,000 readers located in practically every town of over 10,000 population in the United States.

In this advertisement will be shown the name of every dealer in each section of the United States covered by these newspapers who has 15 or more Easy-Outs in stock, with all sizes to service most refrigerators—or who orders 15 or more Easy-Outs before September 15. Thousands who see this advertising will want to know where to get their Easy-Outs—and if you have 15 or more Easy-Outs on hand to give the service, this advertising will direct them to your door.

If you have not yet ordered a supply of Easy-Outs, send in your order for 15 or more, assorted, to-day. Act quick to take advantage of the advertising that will appear in your territory. Special 15-Tray Offer with retail value of \$34.00 sent to you for \$20.40, if ordered at once—your profit 40% or \$13.60—good until September 15.

The above advertisement will appear in colors in the American Weekly—magazine section of the following newspapers: Albany Times-Union, Atlanta American, Baltimore American, Boston Advertiser, Chicago Herald and Examiner, Detroit Times, Los Angeles Examiner, Milwaukee Sentinel & Telegram, New York American, Omaha Bee-News, Pittsburgh Sun-Telegraph, Rochester American, San Antonio Light, San Francisco Examiner, Seattle Post-Intelligencer, Syracuse American, Washington, D. C., Herald.

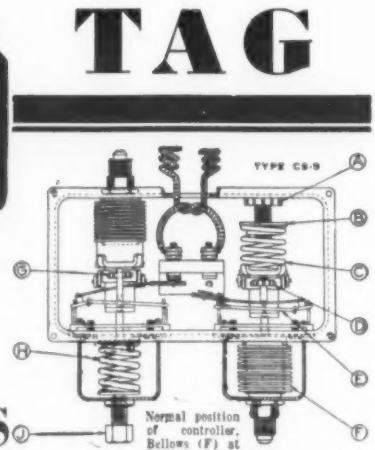
These papers have a large circulation in cities surrounding those listed here. For that reason every dealer in towns over 10,000 population will feel the effect of advertising in this publication.

REFRIGERATION
ACCESSORIES
DEPARTMENT OF
M^cCORD
RADIATOR
& MFG. CO.
DETROIT, MICH.



**SNAPON
CONTROLLERS**

*do everything asked of such
devices and COST LESS!*



For use on Commercial Refrigerators, Ice Cream Cabinets, etc., where high pressure or high temperature Cut Out is required, the TAG Model CS-5 furnishes the ideal automatic control.

Underwriters' Laboratory approval is guaranteed on this instrument when used with 1 1/2 H. P. motors A. C., 110-220 volts; 1 H. P. motors D. C., 110 volts; 1/2 H. P. motors D. C., 220 volts.

Here are some of the outstanding specifications:

LOW SIDE (Pressure)

Differential may be from 3 lbs. or its equivalent in vacuum and pressure to 25 lbs. or its equivalent in vacuum and pressure.

Differential may be increased or decreased in accordance with instructions posted on inside cover of controller. It may be run up or down over the range.

LOW SIDE (Temperature)

Differential may be from 5° to 25° F.

Differential may be increased or decreased as described above.

HIGH SIDE (Pressure)

Range 100 to 200 lbs.

Differential may be from 10 lbs. to 30 lbs. and may be increased or decreased.

Differential may be run up or down over range.

C. J. TAGLIABUE MFG. CO.
PARK & NOSTRAND AVES.
BROOKLYN, N. Y.

C. J. TAGLIABUE MFG. CO. Dept. 25
Park and Nostrand Aves., Brooklyn, N. Y.
Consultant: Please send me price and literature on
Snapon TAG Snapon Controllers.
Name _____ Address _____

GAS GROUP LAUNCHES APPLIANCE PROGRAM

NEW YORK CITY—The American Gas association has announced a program designed to bring plumbing and heating dealers back into the field of operations as merchandisers of gas appliances, and at the same time to ban utilities' sale of appliances not directly related to the use of gas.

This new platform of the American Gas association was signed by 126 presidents of member companies.

P. W. Donoghue, president of the National Association of Master Plumbers immediately notified secretaries of local associations of the new situation and advised them to have members confer with local gas company executives to adjust any problems arising out of the new situation.

The platform of the association reads as follows:

"It is recommended that gas companies take the initiative in bringing about conferences with dealers in their localities, to the end that the following or other mutually acceptable principles may be agreed upon, adopted and put into use for the purpose of stimulating the sale of suitable gas appliances and promoting the use of gas service in a way that will be mutually advantageous to all participants."

1—All gas appliances offered for sale by all cooperating agencies shall bear the seal of approval of the American Gas Association Testing Laboratory.

2—No appliance or merchandise not directly related to the use of gas shall be sold by gas utilities.

3—In all merchandising activities, the re-sale mark up of all gas appliances that have received reasonable customer acceptance shall be consistent with present day merchandising practices. There shall be no premium given nor trade-in allowances made in connection with the sales of any such appliances unless all cooperating agencies are in a position to participate.

4—The presenting to the public of those gas appliances not having received reasonable customer acceptance shall be considered as promotional activities and not as merchandising activities.

5—Coordinated advertising of approved appliances should be developed by gas utility companies and local dealers, and the gas company should give all reasonable assistance possible to the dealer in advertising, displays and sales assistance.

6—The deferred payment feature of merchandising activities shall be on an economically sound basis.

MOHAWK DISTRIBUTOR FOR NORTHERN ILLINOIS NAMED

NORTH TONAWANDA, N. Y.—Wakem & Whipple, Chicago, has been appointed distributor for Mohawk electric refrigerator and Lyric radio in northern Illinois, according to Eugene R. Farny, president of All-American Mohawk Corp.

The first sales meeting of the distributor organization was held Aug. 14 at the Tavern club, Chicago, and was attended by Mr. Farny. An advertising and merchandising plan was presented by J. H. Wimberly, Jr., advertising manager.

Members of the distributing organization present included: Roy Whipple, H. Smith, Gilbert Schreiber, Edward Barron, Paul Dietz, Fred Stuckwisch, C. J. Crawley, Clarence Larson, William Abrahams, Harry Schoenwald, and A. W. Percival. David H. Lipsey, district representative for Mohawk, was also present.

BARR APPOINTED GEORGIA POWER MERCHANDISE HEAD

ATLANTA—W. W. Barr, assistant to the vice president of Georgia Power Co. in charge of sales, has taken over the duties of merchandise manager, succeeding H. A. Pendergraph, who resigned to become General Electric distributor for Tennessee.

I. H. Morehead, Jr., has been made merchandise manager of the Atlanta division while O. M. Jackson, Macon division commercial manager, will become merchandise manager of outside-Atlanta divisions on October 1, succeeding C. O. Brown, who will join Pendergraph in the distributorship.

H. S. Dodgen, assistant to Brown, will become Macon district sales supervisor.

FURNITURE COMPANY MADE G. E. DEALER

BIRMINGHAM, Ala.—(UTPS)—The Alabama Refrigeration Co., state distributor for General Electric refrigerators has appointed Hood-McPherson Furniture Co. of Ensley, as dealer in that territory.

MUSIC DEALER HANDLES ICE-O-MATIC UNITS

TERRE HAUTE, Ind.—Paige Music Co., dealer in radios, pianos, and other musical instruments, is handling Ice-O-Matic electric refrigerators.



Tell her about Temlok.... *the new fibreboard insulation made by Armstrong*

YOUR sales presentation gains added power when you point out to housewives that your refrigerators are insulated with Armstrong's Temlok. For women know that the Armstrong name stands for high quality and lasting service—they are familiar with Armstrong's Linoleum because of consistent national advertising and thousands of satisfied users in all parts of the country.

And if your prospective customer asks her husband's advice, he'll tell her that Armstrong has an equally enviable reputation as the maker of high

grade insulation products. Armstrong's Corkboard has been standard insulation for over thirty years.

Armstrong's Temlok, with this splendid background, now has increased insulating efficiency—its conductivity is .28 B.t.u. per square foot, per inch thickness, per degree F. temperature difference, per hour, at 60 degrees F. mean temperature. Density is .9 pound per board foot.

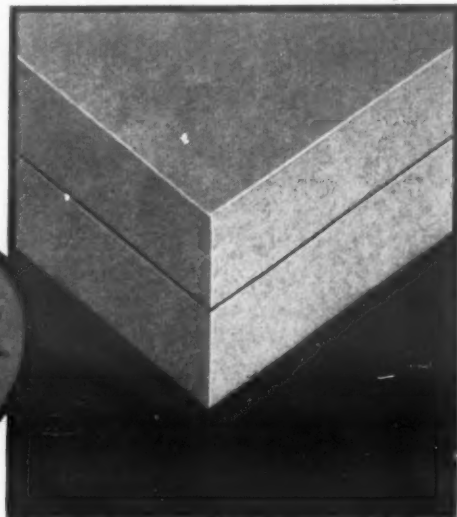
Temlok is fabricated from the heartwood fibres of southern pine. Because of the basic properties of this raw material, impregnated with resin by Nature, Temlok retains its insulating efficiency in actual service—gives permanent performance.

Every requirement for efficient insulation of domestic refrigerators is met by Temlok. In addition to possessing low conductivity and light density, Temlok is rigid and structurally strong. It is odorless, does not promote mold or bacterial growth. Temlok Refrigerator Insulation can be furnished in any desired thickness and is accurately cut to size for quick, economical installation.

Temlok's low cost is of interest to both manufacturers and merchandisers of refrigerators. Fill out the coupon below. It will bring complete information and samples. Armstrong Cork & Insulation Company, 917 Concord Street, Lancaster, Pennsylvania.

Armstrong's
A
Product

Armstrong's Temlok now has increased insulating efficiency—lighter density, and lower conductivity. It is rigid and structurally strong and does not promote mold or bacterial growth. Furnished in any desired thickness, accurately cut to size. Despite added advantages, the new Temlok is available without increase in cost.



ARMSTRONG CORK & INSULATION CO.
917 Concord St., Lancaster, Pa.

Please send me complete details regarding Armstrong's Temlok Refrigerator Insulation.

☐ Please send sample.

Name

Street

City

State

IDEAS AND
IMPRESSIONS

COMMENT

VIEWS AND
EXPERIENCES

By F. M. COCKRELL

Money's Worth

Business men are doing much complaining nowadays about the way other people hold on to their money.

But is it surprising that the small buyer is inclined to hoard his cash considering the example set by so-called big business?

If you go to a banker for advice about an investment, the odds are he will tell you to hold on to your money.

Anyone who spends money these days must have a lot of confidence in his own convictions. He has to go contrary to the crowd.

For that reason, I believe that the man who buys today is entitled to get a lot for his money.

That is one reason why ELECTRIC REFRIGERATION NEWS will be issued every week instead of every two weeks. We intend to give subscribers more for their money than ever before.

We have already expanded the editorial content of the paper out of all proportion to the increase in advertising revenue.

We plan to continue to increase the value of our service to customers.

And we are not straining for profits. There will be plenty of time later to make profits. Now is a time to do a job.

The electric refrigeration industry has been criticised for its failure to show profits. Attention is sometimes called to the enormous investment which has been made in this business and the small returns made to stockholders up to the present time.

Some of the companies are just be-and short-sighted not to take advantage of them.

Bright Spot

But this industry has certainly been a bright spot during the depression period. It has kept going, building, expanding, going forward while other lines were in retreat.

The industry is full of enthusiastic, creative, aggressive people who see the need for a service and who want to do a job.

They have their eyes on the future and are content to sacrifice present profits for future rewards.

They see so many applications of refrigeration to be developed, so many opportunities to improve living conditions, to promote health and prevent waste, that they cannot rest while the work remains to be done.

And they are not trying to get the public to buy more of the same old stuff. They are selling something new and better.

If the business world in general could catch the spirit of the electric refrigeration industry there would be little worry about the depression.

This industry isn't waiting for the old business to come back, it is going out after new business.

If there ever was a time to build for the future, it is now.

There are so many opportunities to get set for the future, there are so many bargains available, that it seems foolish

Competition is keen but it is practically all of one kind—price.

Many companies, many people, have quit trying. The field is wide open for anyone with ideas and imagination.

Tear Ducts

Referring to the above statement that "many people have quit trying," when the dictaphone operator transcribed my dictation she wrote it: "many people have quit crying."

That is probably true, too.

At the N. E. L. A. convention in Atlantic City last spring Harry Alexander told me about a friend who was bemoaning the sad fate of his business. After listening a while Harry said to him:

"What do you want me to do? Cry?"

"Don't ask me to cry about your business," said Harry, "my tear ducts are all dried up from crying about my own business."

Nerve?

"You have nerve, making ELECTRIC REFRIGERATION NEWS a weekly paper in times like these," said S. Greve when I called at his office in St. Paul, Minn., recently.

Mr. Greve runs an advertising agency and handles the account of Seeger Refrigerator Co. He has been one of our good customers for the past five years but it was the first time that I had ever met him personally.

Come to think of it, the Greve agency sent in the first advertising contract ever received by the News, back in 1926.

The fact that it has taken me five years to get around to calling on our first customer would indicate that I am not much help to the advertising department.

But Mr. Greve's opening remark put it up to me to do some selling, without delay.

When anyone compliments your nerve, it may be just a diplomatic way of questioning your judgment.

There was no doubt in my mind as to what he meant, so I set to work.

I started to tell him about the need for the service, the growth of the industry, the great activity throughout the field, the plans of manufacturers for increased intensity of sales effort, the stimulating effect of a paper full of news every week.

Right away, he brought up the question of profits. Could we double the number of issues and make it pay?

Baiting a Hook

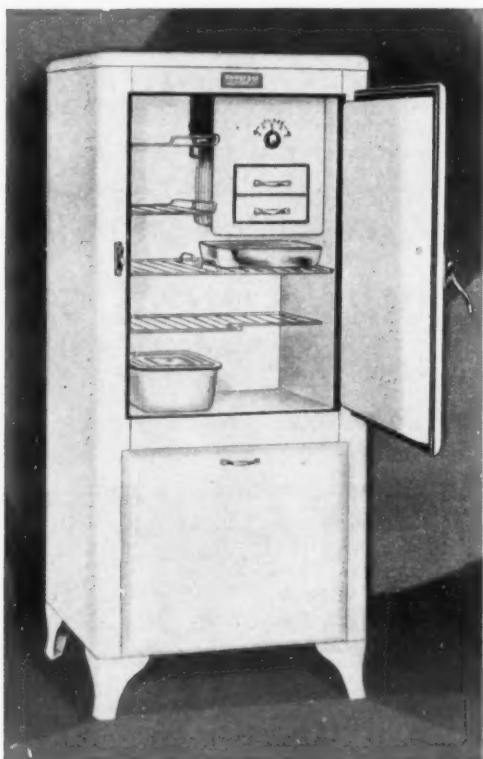
Obviously this man Greve knew how to bait a hook. He hasn't been in the advertising business all these years for nothing.

That profit question is a favorite trick to play when the ambitious young business man shows signs of becoming too aggressive.

When the youngster begins to boast about the growth of his business, his production, his sales, the great future ahead, you look at him earnestly and sympathetically and ask:

"Ah! but, are you making any money?" The usual answer is "No." That takes the wind out of his sails and gives you a chance to offer some fatherly advice.

Mr. Greve had handed me a couple of hot ones before I scarcely had a chance to get my bearings.



Universal Cabinet No. LP-5. A 5 cu. ft. self-contained model

SALES RESISTANCE IS
AT A MINIMUM WITH
Universal Coolers

THE refrigeration prospect of today is demanding an exceptional value for his dollar, which means, incidentally, that everything is in the favor of the Universal Dealer—because the Universal Line of self-contained cabinets offers the most remarkable "buys" the industry has ever known. They retail for far less than the expected price, are equipped with the ever-dependable and economical Universal Compressor and possess every desirable feature, including the Refresh-O-Pan, cold regulator, porcelain interior, massive chromium hardware, one rubber tray and five-inch legs.

Complete information upon request.

Universal Cooler Corporation

Detroit, Mich. - - Windsor, Ontario, Canada

George Dwelley Goes Conservative



Or so it would appear from the belt and suspenders, but appearances are sometimes deceiving. See comment. Illustration courtesy of Oakland Motor Car Co., Pontiac, Mich.

I had to do something or he would have me licked without a struggle.

So I launched into some recollections of previous depressions, going back to 1907, and said:

"Perhaps you remember that? You must be nearly as old as I am."

After that we got along all right.

If any of our young men get too smart, I'll send 'em up to St. Paul and let Mr. Greve whet his teeth on them.

\$50,000

"Making New Friends and Keeping the Old," is the theme of a series of advertisements prepared by Campbell Ewald advertising agency for the Oakland Motor Car Co.

The advertisements are strong in human interest, but my interest in one which appeared recently was multiplied when I recognized the smiling countenance of George Dwelley in the picture. (See reproduction above.)

George was the go-get-'em sales manager of Kelvinator back in the pioneering days when the going was rough and only the hardest of fighters could hold their own.

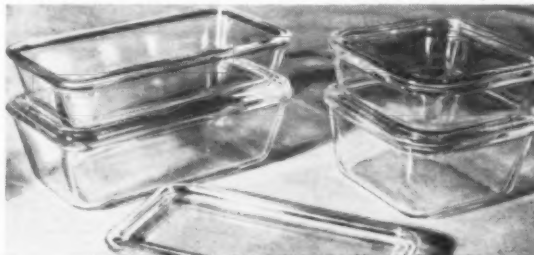
A few years ago he acquired the sole right to distribute the rubber ice-cube tray. Up to that time the rubber tray had made little headway, but George soon secured adoption by leading manufacturers.

According to rumor, the Inland Mfg. Co. paid him \$50,000 just to sign over his rights to the franchise.

Look at the picture and see what money does to a fellow. Observe the belt and suspenders. It would appear that George has become a conservative, holding fast to what he has, taking no chances.

I knew him when he would risk his shirt, or pants, in any kind of a venture.

Wait a minute! I find he is at it again, as "national selling agent for Karbo Mfg. Co.—Carbonators, beverage containers, dispensers, filters, bottling valves and supplies." He has some kind of a home soda fountain with complete equipment for making carbonated drinks at small cost.



Little
'EXTRAS'
often swing

the sale . . . always build goodwill

PYREX
Refrigerator
Dishes as
premiums give
that added pull

PYREX REFRIGERATOR DISHES

As leads . . . as goodwill builders . . . for advertising purposes . . . as effective persuaders when sales hang in the balance . . . nothing works like a premium. And when selling refrigerators, the most appropriate premiums are, of course, those that boost the value of the refrigerator itself . . . add a convenience that the buyer appreciates.

Made of the famous Pyrex heat-resistant glass, impervious to the heat and cold alike, Pyrex Refrigerator Dishes serve a triple purpose . . . they may be used for baking, serving and refrigerating. Single dishes retail for as little as 85c—set of four \$4.40.

Write to Corning Glass Works, Corning, New York.

Trade-mark "Pyrex"
Reg. U. S. Pat. Off.

Well, the darn slicker! Look at the picture again. There he is demonstrating his own product, and he gets Oakland to pay for the advertising.

I was going to put in his address, but I won't do it now. If he wants any advertising in this sheet he can pay cash for it.

Bird Cage

H. V. Higley of the Ansul Chemical Co., Marinette, Wis., rates as an old timer in electric refrigeration, having been with Isko when that company was operating in Detroit 15 years ago.

He tells some interesting stories about the early stages of the electric refrigeration business and the amazing ramifications of the Isko enterprise.

According to Mr. Higley, more time was spent trying to make the Isko compressor look pretty than was devoted to considerations of efficiency and reliability.

He cites the "bird-cage" compressor. The bird, some polar variety, was carefully designed in the fly-wheel, while the copper coils around the machine completed the bird-cage effect.

He says that Fred Heideman deserves the credit for making the first successful Isko compressor.

While in Marinette I had the good fortune to meet R. E. Dornbush, Toronto representative of Canadian Industries, Ltd., the organization which distributes Ansul sulphur dioxide throughout Canada. Headquarters of the company are at 372 Bay St., Montreal.

The DuPont Corp. owns 47 per cent of the stock in Canadian Industries, Ltd., and Imperial Chemical Industries of London, Eng. is a heavy stockholder. In addition to Ansul, they represent the Grasselli Chemical Co. and operate plants for the manufacture of DuPont products, such as explosives, paint and varnish, fabrikoid, pyralin, salt and alkali products, and ammonia.

Mr. Dornbush reports that refrigeration sales in Canada are better this year than in 1930.

Minneapolis

The Minneapolis-Honeywell Regulator Co., 2700 S. Fourth Ave., Minneapolis, is an impressive institution. The Minneapolis and the Honeywell companies, formerly competitors in the field of temperature regulation equipment, were merged a few years ago and more recently the Time-O-Stat Co. at Elkhart, Ind., was added to the combination.

L. B. Miller, sales engineer in charge of refrigeration applications, is located at Elkhart and spends considerable time at Wabash, Ind., where the company has a laboratory. Mr. Miller reports to J. W. Pauling, vice president in charge of the original equipment division. Henry Dever, assistant to Mr. Pauling, was formerly with the Time-O-Stat organization. E. F. Shivers has charge of all new development. R. L. Goetzenberger has charge of industrial applications.

(Concluded on Page 13, Column 3)

THE IMITATION FOOD
PRODUCTS CO.

107 Lawrence St.
Brooklyn, N. Y.

Entering the Eighth Year of successful
business

Ask for catalog of January, 1931

A New Copeland Feature



On the new DeLuxe models, Copeland Products, Inc., has placed a bottle opener on the door handle. This is one of the several changes made on the unit shown above by Copeland engineers.

N. E. L. A. PUSHES COURSE IN REFRIGERATION SELLING

NEW YORK CITY—Concurrent with the opening of the fall refrigeration sales campaign, the educational committee of the National Electric Light Association is furthering salesman education through its unit, "Selling Electric Refrigeration."

Thirteen other units are included in the complete course offered by the association, five of which are on general subjects.

The refrigeration unit is divided into three major classifications: food preservation and electric refrigeration, technical aspects of electric refrigeration, and sales presentation.

Topics covered in each part are: Food preservation and electric refrigeration—how food preservation developed, romance and heroism, mechanical refrigeration and cold storage, causes of food deterioration, harmful bacteria, insidious enemies, harmful molds, harmful yeasts, why harmful micro-organisms grow, perfect coldness is necessary, importance of dry temperatures, selling ideas for electric refrigeration, convenience, better food, economy in handling the food problem, and pride of ownership.

Technical aspects of electric refrigeration—theory of refrigeration, heat flows to cold, heat affects substance form, boiling points differ, pressure affects boiling point, cycle of refrigeration, cycle operation, control of operations, necessary technical information, qualities of a good refrigerant, and an electric refrigerator's component parts.

Sales presentation—approach, demonstration, arrangement and development, demonstrating in home or office, demonstrating in the showroom, closing refrigerator sales, after the sale, and handling sales resistance.

The course deals with common reasons for not buying electric refrigerators such as initial cost, rental, satisfaction with present method, and the need for refrigeration only four months out of the year.

TERRE HAUTE FIRM SELLS GIBSON ELECTRIC UNITS

TERRE HAUTE, Ind.—Gibson electric refrigerators will be handled in this section by the Pickett Service Co.

All in a Day

PHILADELPHIA, Pa. — Speed and service makes for success in any line of business, particularly that of refrigeration.

When the order for Philadelphia's 3,000th Electrolux refrigerator was received by the Philadelphia Gas Works Co., somewhat of a local record was achieved.

Salesmen Merc Rees and Thomas Love secured the order from Joseph Lynch, at exactly 12:45 p. m. on July 30. It was promptly marked special, passed credit by Mr. Kamp in 15 minutes, and telephoned to C. R. Logan, chief supervisor of refrigerator sales at 1:05 p. m.

Owner Lynch received his new refrigerator and was freezing ice cubes late the same afternoon.

GEORGIA FIRM APPOINTED KELVINATOR DISTRIBUTOR

SAVANNAH, Ga.—Electric Specialties Corp., has been appointed distributor for Kelvinator electric refrigerators in 24 counties of southeast Georgia.

In addition to acting as distributor, Electric Specialties Corp. will maintain a local retail store and will employ six salesmen. Two men will be assigned to commercial sales and four to domestic sales.

25,000 ATTEND OPENING OF NEW ORLEANS STORE

NEW ORLEANS—Twenty-five thousand visitors attended the opening day exhibition at the salon recently opened here by the L. Grunewald Co., Inc., to distribute General Electric refrigerators and commercial units.

FIRST FRIGIDAIRE IN NEW ZEALAND OPERATES

WELLINGTON, N. Z.—The first Frigidaire, shipped to New Zealand, purchased by J. R. Naylor of this city in 1926, is still in operation. It is now the property of Mr. Naylor's daughter.

Comment

(Concluded from Page 12, Column 5)

Controls

Mr. Goetzenberger explained that they have five devices for the refrigeration industry, as follows:

(1) Airswitch for temperature control inside the box. It operates a mercury contact in the main circuit of motors up to ½ hp.

(2) Bulbswitch for outside or remote control.

(3) Pressureswitch for systems using pressure control.

(4) Relays which may be used in connection with the above switches for circuits up to 5 hp., 220 volts.

(5) Motor-operated valves for brine (not for ammonia). The valves are interchangeable for pipe sizes from ½ to 3 inches, inclusive.

According to Mr. Goetzenberger there are many industrial processes requiring refrigeration. At present he is devoting considerable attention to air conditioning, working with the Carrier Co.

He says that, so far, all temperature control of quick-freezing processes is by manual operation.

Dehydrating Ovens

H. L. Grapp, secretary and sales manager of the Despatch Oven Co., 622 Ninth St., S. E., Minneapolis, does not consider that a service station is prepared to service unless they have one of his ovens for dehydrating coils and machines.

Despatch makes a small oven for service stations having a capacity of 22½ cu. ft., which sells for \$168.00. They have sold over 100 to Majestic dealers and are getting some good business from Norge dealers at the present time.

The four Despatch ovens for the Majestic plant in Chicago are the largest in the world, according to Mr. Grapp. He complains that the pictures of the Majestic plant, which the News published when operations started last year, showed everything except his ovens.

He also claims that our Directory, published Jan. 14, has too many errors.

He admits, however, that he expects to get \$100,000 worth of oven business from four different companies within the next few months.

For Mr. Grapp's benefit and others, we are going to do a bigger and better job than ever before on the next Directory.

Directory

Readers who like the size and style of this paper as a news sheet, but who find it inconvenient as a directory, please take notice:

The 1932 Directory will be a book about 6 by 9 inches in size—a most convenient arrangement for reference purposes.

Also, the small page size will enable us to offer a low advertising rate. We will try to make it low enough that no manufacturer can afford to omit a suitable description of his product.

With this added service, advertisers may have most anything they want. Here is a line-up to suit any size of appropriation:

1. ELECTRIC REFRIGERATION NEWS, Merchandising Section, every week.
2. ELECTRIC REFRIGERATION NEWS, Engineering Section, every two weeks.
3. REFRIGERATED FOOD NEWS, for commercial refrigeration users, every week.
4. REFRIGERATION DIRECTORY once a year.

Kaye Don

Frank Riley, manufacturers' agent, has a permanent ringside seat for all aquatic events on the Detroit river. The Alden Park apartment, which he has occupied for years, is only a few yards from the water line.

Detroit Yacht and Boat clubs, on Belle Isle, are directly across the river, and all boat races are run on a course in front of his windows.

When Kaye Don, British sportsman, spilled himself and crew at the first turn in the second race for the Harmsworth Trophy on Labor Day, he staged that thrilling event as if for the special benefit of Frank Riley and his guests.

On Sunday we watched Miss England II, driven by Don, beat Miss America IX and Miss America VIII, driven by Gar Wood and his brother, George Wood.

In the second heat on Monday, Gar Wood outwitted his British rival in two maneuvers. First, he beat the gun and snared Don into doing the same, thereby disqualifying both and leaving Miss America VIII to win the race. Second, he swung wide of the buoy at the first turn, tempting Don to cut the corner too short. In doing so, Miss England II took a nose dive under the waves.

E. C. Raney of the Automatic Reclosing Circuit Breaker Co. drove up from Columbus, O., to see the race. He promised to get a picture as the speedboats went by on the first lap, but when Kaye Don turned turtle, he became so excited that he forgot to snap the shutter.

H. Spencer of Norge Corp., was another breathless member of Frank's party to witness the speed dive.

SMASHING Flexo Tray

ADVERTISEMENT FEATURING,
BELIEVE IT OR NOT..By RIPLEY



Here's a one-fourth actual size reproduction of our September "Believe It Or Not" cartoon by Ripley . . . another eye-catcher and sale-producer for flexible rubber ice trays. This outstanding advertising in Collier's, The New Yorker and other national magazines, is a sensation. Get the facts, then cash in.

Public reception of Flexotray national advertising has been truly remarkable. It's nation-wide in scope, universal in appeal . . . the kind that creates interest and brings results.

Small wonder, though . . . since Robert L. Ripley himself makes the drawings and states the facts in his famous "Believe It Or Not" cartoon style that millions of people read every day.

An apt subject for this unique treatment, flexible rubber ice trays have caught and held the fancy of automatic refrigerator owners, present and prospective. Small wonder about that, either.

For these modern ice trays deliver ice the modern way—a slight finger-tip pressure "pops out" the cubes, from tray to glass

instantly. No longer is it necessary to melt out the cubes into the sink—no splashing of water—no soiled clothes. These new trays are now included as regular equipment in the latest models of all leading refrigerators.

Of course, flexible ice trays are in great demand. Of course, they are making money for dealers. How about you? There's a tray made for the refrigerator you handle . . . a tray you can sell to new and old customers . . . a tray that can bring you new prospects, new business, new profits.

"Believe It Or Not" . . . flexible ice trays are here to stay, and pay! Ask for full details from the refrigerator manufacturer you represent . . . or from us direct. Do as you wish about that . . . but do it now!

THE INLAND MANUFACTURING COMPANY
DAYTON, OHIO

Flexo Tray

ICE CUBES INSTANTLY—TRAY TO GLASS

Little Stories of Interesting
PEOPLE
In the Refrigeration Industry

THE EXPANSION VALVE

By George F. Taubeneck

Little Stories of Interesting
IDEAS
In the Refrigeration Industry

No Melancholia

The melancholy days are here,
The saddest of the year.
It's much too warm for whisky,
And far too cold for beer.

Anyone who would have piped up with a single one of the verses to this old ballad at the Frigidaire fall "pep meeting" in Dayton last Thursday would have been immersed in boiling oil, strung up by his big toes, or ostracized as completely as a man in a B. O. ad.

The melancholy days are not here, speaker after speaker insisted, long and repeatedly and heatedly.

The hardy perennial stall, "my husband and I have decided to wait until spring," was pounced upon and torn into the same sort of shreds that a wire-haired terrier turns out when he gets hold of baby sister's teddy bear.

Whatever else the Frigidaire organization may or may not have, it does possess some spellbinders who know something about the psychology of crowds (vulgarily known as "mob spirit") and how to utilize that knowledge.

That meeting would have done the heart of old John Patterson good, had he been alive and able to attend.

His son, Fred, who is now president of the National Cash Register Co., just as his father, was there and enjoyed it hugely.

It was done according to the best Patterson spirit, manner, and tradition.

First of all, there was the stage. Elevated. Well lighted. Drapes and hangings and curtains which had the air of richness. On one of the drapes, three words a-glitter: Attitude, Ability, Brains.

Anchored on the stage were two easels which held big pads of blank white paper. On one of these pads the orators (for orators they were!) outlined their speeches as they went along, marking up their points on the pad with a heavy black crayon.

The other was ready and set for the occasion. On it were hand-lettered the sales arguments and the ideas which were the roots of the entire day's discussion.

If members of the audience failed to HEAR the speakers properly (which is almost inconceivable), they couldn't help SEEING the messages on the "white blackboards."

Orators Kennedy, Gault, Spayde, Van Dyke

Among those who ascended the rostrum and uncorked some plain and fancy eloquence were H. H. Kennedy, central region manager; R. D. Van Dyke, assistant regional manager; L. R. Gault, of the central region commercial department, and M. A. Spayde of the central region headquarters staff.

Spayde, a forceful young man with a voice like a top sergeant, was with the Dayton retail store until recently. He makes capital of his voice, of his enthusiasm, and of his vigor.

Hard-hitting, keen, masterful was Manager Kennedy. He is an intense man, and bullet-like words pour out of him with torrential rapidity.

Kennedy's forte is personalizing his speeches. After presenting a new idea he demands, and gets, a chorus of assent and approval from his listeners. And periodically he will interrupt himself to say:

"I'm talking to you, Jim Brown, and to you, John Black. And George Green, if you will take this lesson to heart, you will give that quota you think is so big an awful bump."

"Sam White, unless you adopt this plan, you're friend, Dick Gray, is going to leave you so far behind in the race you two are running, that you won't even be an also-ran."

Proud of his dad was young Bob Kennedy, a likely looking lad who will return to college soon. Bob sat through the entire meeting, absorbed in his father's technique.

As an after-thought, the Valve was called upon to speak up and 'spress himself. Even though he seized the opportunity to talk on a subject near his heart—the doubled service ELECTRIC REFRIGERATION NEWS is giving its readers by coming out every week—the Valve felt his little declamation to be a mere mew, lost amidst the thunderous dictums of the lions who preceded and succeeded him.

C. A. Copp

Approximately half of Frigidaire's business is now done through its sales branches. In charge of these branch operations is C. A. Copp.

Large, raw-boned, slow-moving, heavy-lidded, Mr. Copp gives every appear-

'You Fellows Are All Wet!'



"Anyone can sell electric refrigerators this fall, if he knows how to make the right approach," this regional manager is telling a pessimistic dealer and his salesman. The picture is from the Frigidaire talkie, "Cold Cash."

ance of being deliberate and careful in his actions and reactions.

There is strength in his bronzed face, and in the steady eyes which are half hidden by his drooping lids.

His voice, meticulous, clipped, level, reserved, matches his general external appearance. He is not a man to be stamped into hasty action.

Nevertheless, his evident strength-in-reserve indicates that he can swing into action with celerity when occasion demands.

As Others See Us

On the front page of this issue is a picture of a salesman attempting to get an order from a prospect and his wife who have decided to wait until next spring.

On this page is a picture of a regional manager trying to convince a dealer and his salesman that fall sales resistance is nothing but a bugaboo which can be scared into an unceremonious retreat by the application of a little thinking, plus some extra leg work.

Both of these pictures are "stills" from the talking motion picture, "Cold Cash," which has been shown to the entire Frigidaire sales organization during the last fortnight.

Professional actors made the regional manager and the dealer quite lifelike. A prospect for a household job, who was finally sold, was a genuine hard-nut-to-crack.

So, too, was the commercial prospect—a dimwit German grocer, who capitulated after inexhaustible patience and a steady grip on the ABC's had won their reward.

This picture was a dandy. Synopted briefly, a down-in-the-mouth household salesman and a ditto d. i. t. m. commercial salesman are inspired by a regional manager. They pack up their kits and go after 'em.

In succession one watches the household salesman obtain a signature on the dotted line, and the commercial salesman land an order.

While those who saw the picture agreed that the acting of most of the characters was good, nearly everyone had a quarrel of some description to pick with the work of the two salesmen.

Practically every man in the audience knew how it could have been done better, although few of the suggestions or criticisms matched.

If each of the salesmen who saw that picture could have viewed a talking picture of himself playing the role of the salesman, he might have learned much.

And sales managers could well sing the once-popular lyric, "If I Had a Talking Picture of You," for could they watch their men in

action, they might understand a little better why prospects cool off just when they should be making flourishing motions with a fountain pen.

One of the most effective educational instruments now available to modern football coaches is the moving picture.

In many of the larger universities it is now a regular practice to take complete films of football games, and then show them to the assembled squad on the Monday following.

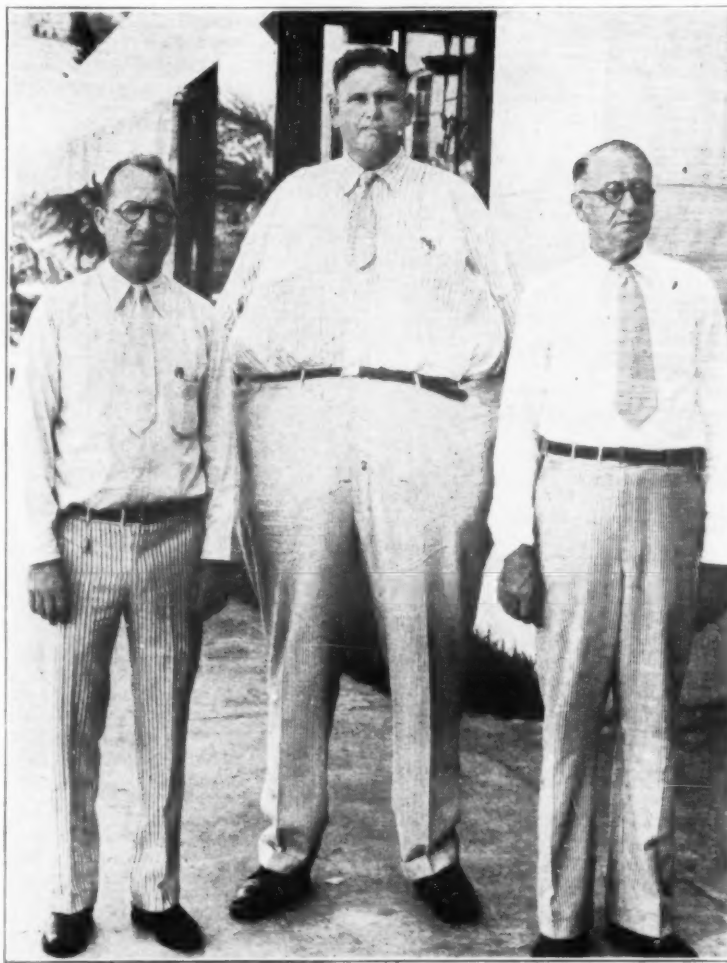
A coach can harangue a man for hours without appreciable effect on the

necessity of following the ball. But when that man watches himself standing around with a lost look on his face while a free ball rolls near him, he will be convinced for all time.

Full backs watch themselves run into a line standing up. Tacklers see that their timing is poor. Quarterbacks note the extra loose formation of the defense on the goal line, and understand why that scoring play didn't work. And so it goes. The picture never fails to get results.

Salesmen who are dimly suspicious that their "line is getting stale," or who have become acutely conscious that something is missing from, or radically

A Big Dealer



The big boy in the center, Arthur K. Woodman, is treasurer of F. J. McGinnis, Inc., Kelvinator distributor for Miami and Palm Beach. Mr. McGinnis (left) first met Woodman when he sold Kelvinator equipment to the latter for his fishing and pleasure craft. Now they are partners. G. H. Brockway (right) is manager of the distributorship.

wrong with their presentation, might have wives make good use of a home movie camera while they (the salesmen) practice on neighbors. Yes, we're serious.

Mrs. Ice, Mrs. Frost, Mr. Freeze

Before we leave the subject, it might be interesting to note that a Mr. Freeze directed the talking picture, "Cold Cash."

And shortly after its showing in Dayton, it was announced that Mrs. W. B. Frost and Mrs. R. U. Ice, both of Madisonville, Ky., had recently purchased household models.

That name, Mrs. R. U. Ice, reminds one somehow of the OKMNX yarn. Undoubtedly you've heard that one, but how about this?:

ABCD goldfish.
LMNO goldfish.
OSAR goldfish.
Now it's your turn.

92 Ice Boxes

At the luncheon which was the only breathing spell in the entire day's program at Dayton, we talked a bit with "Buck" Rogers, affable, money-making Frigidaire dealer in Anderson, Ind.

Mr. Rogers claims he hasn't missed an issue of the News since its birth—just five years ago.

The ice business is enjoying one of the best years of its history in Anderson, Mr. Rogers believes. Yet comparatively few ice boxes have been purchased.

He himself has sold 92 second-hand ice boxes (trade-ins) so far this year. The local ice company, the chief merchandiser of ice refrigerators there, has sold only 60 to date in 1931! Mr. Rogers feels pretty good about that.

His own business is coming along nicely, thank you. At first he was an electrical contractor. Seven years ago he took on Frigidaire.

Slowly, but surely, the selling of electric refrigeration ate up time and efforts formerly spent on his electrical contracting business.

Last winter he sold radios. Farewell to radios and all other appliances this year. He is going to stick to electric refrigerators, and forget about everything else.

Oh, sure, he will do a little wiring now and then. But he knows he can make money in the refrigeration business, and money has a persuasive voice.

One of his most lucrative accounts is an arrangement with an Anderson ice cream manufacturer, whereby Mr. Rogers furnishes year-round ice cream cabinet service for all the former's customers.

This concern is constantly changing its outlets. It will jerk a cabinet out of a roadside stand and put it in a new restaurant. In a week the cabinet may be moved elsewhere.

And when there is a goodly number of such itinerant cabinets, installation costs run into money. At least, Mr. Rogers seems satisfied with the business.

George Bright in Form Again—Shoots 86

One of the most surprising features of the spring meeting of the American Society of Refrigerating Engineers, held May 6, 7, and 8 at Kansas City, was the dethronement of George Bright in the championship golf tournament.

A past president of the A. S. R. E., as well as its most noted golfer, the well-known Detroit refrigerating engineer was a big pre-tourney favorite. But George had a bad day, shot 106 for the 18 holes, and lost the crown to General Electric's R. W. Ayres.

During the course of a conversation with Mr. Bright the other day, he handed us a little score card. It bore the name of Pelham Country Club, Pelham Manor, N. Y. On it were the scores of George Bright and E. T. Williams, consulting engineer for Servel, Inc.

"Just wanted to show you that my Kansas City score didn't ruin me for the season," smiled George.

The card indicated that Mr. Bright's score for the Pelham 18 was 86. Mr. Williams shot 98. On the second nine holes, the Bright score was 39, just three over par.

If anyone in the refrigeration industry has a better score to his credit this season, the Valve—acclaimed everywhere as the WORST golfer in the refrigeration industry—would like to be told about it.

DISPLAY LARGE SALES FACTOR, DEALER SAYS

PORTLAND, Ore.—"Display is 40 per cent of a sale. Put a diamond in the right mounting or a refrigerator in the right setting and 40 per cent of the sale is accomplished," states J. H. Anderson, manager of the house furnishings department at the Ira F. Powers Furniture Co.

"People are buying electric refrigerators as they do bonds today," he remarked in summarizing the salesman's part in selling several hundred machines in a month. "Customers want to know how much they will make on this investment, how much they will save."

"Manufacturers, through well-directed advertising, have consistently emphasized the fact that electric refrigerators are not a luxury but a saving. Following this trend, our salesmen base their efforts on the same angle."

"The machines are shown on the lower floor with other house furnishings. Red velvet carpets that offer a strong contrast to the white refrigerators, black velvet canopies from which hidden lights illuminate the machines with no glare, and the angle placement for the right hand view are three important features of the floor display."

"Everyone looks to the right and continues to look in that direction. We arrange every display with this idea paramount," he notes, "whether it is refrigerators, stoves, glassware or electrical appliances. The eye appeal and the investment idea we have found an infallible combination for quick turnover."

9,678 UNITS MARKED BY ASSOCIATED SYSTEM

NEW YORK—The final figures on the result of the refrigeration jubilee of the Associated Gas & Electric System show that the various properties made 124 per cent of quota, selling 9,678 electric refrigerators, according to A. G. & E. officials.

Fourteen groups of operating properties within the Associated System competed against one another on a quota basis. The contest was held in the form of a transcontinental blimp race across the country and was called the "Cold Air Derby."

Each group was represented by a dirigible and the daily progress of the race was depicted on a large map of the United States.

The Louisiana blimp, piloted by J. R. Gaugler, led with 209.1 per cent of quota, selling Kelvinators exclusively. Other groups in the order of their achievements are Pennsylvania-New Jersey, 172 per cent; Empire-New York, 126.6 per cent; Eastern New York, 124.4 per cent; Kentucky-Tennessee-Indiana-Missouri, 120 per cent; Staten Island, 118.3 per cent; Northwestern New York, 117.4 per cent; Broad River, 115.6 per cent; Long Island, 107.5 per cent; New England, 97.4 per cent; Western Pennsylvania, 89.5 per cent; Gas Utilities, 70.7 per cent; Florida, 16 per cent.

W. E. Leverette, sales manager of the Broad River group, was awarded a prize by L. D. West, the vice president in charge of new business. The dealers in his group sold \$4.70 per residential customer, the highest in the system.

OHIO NORGE DEALERS HOLD SALES CONFERENCE

COLUMBUS, Ohio—Dealers representing the Norge Columbus Sales Co., distributor for central Ohio, held a sales conference and discussed the marathon roller contest which ends Sept. 15, at a recent meeting in the Fort Hayes hotel here.

JAPANESE CONFECTIONER ORDERS COPELANDS

DETROIT—Orders for Copeland electric refrigeration equipment for his three confectionery factories were placed by Masuo Mitsui, Japanese manufacturer, with H. M. Robins Co., export factor, on a recent visit here. He owns factories in Osaka, Kobe, and Takamatsu.

MOHAWK DISTRIBUTOR FOR CONNECTICUT NAMED

BRIDGEPORT, Conn.—The D'Elia Electric Co., Inc., has been appointed distributor of Mohawk refrigerators for the state of Connecticut. A number of dealers are now being lined up and an intensive sales campaign may be started in the near future, according to William De Rosa, secretary of the company.

ELIN CO. BRANCH OPENS MODEL KITCHEN

EAST ORANGE, N. J.—Miss Olive Kaiser, home economist, opened the new Westinghouse electric kitchen in the branch store of the Elin Co., Westinghouse electric refrigerator distributor, in a special demonstration Saturday, August 22. Miss Kaiser is home economics director for the distributor.

Depression? No!

MT. CLEMENS, Mich.—The thrifty Yankees haven't heard of a depression according to Louis Ruthenberg, president of Copeland Products, Inc., who recently visited the New England section.

"People in New England are feeling pretty happy now," Mr. Ruthenberg said. "The textile and shoe factories are extremely busy. This would indicate that the much talked of liquidation in the unloading of stocks has taken place and that we are at the beginning of the process of actual rehabilitation."

"I feel that while this is the most tangible evidence I have seen of recovery, people are much less panicky and much more philosophical about the whole situation. This change has taken place very definitely within the last few months."

COAST DISTRIBUTOR GIVES SHRINE LUNCH PROGRAM

SAN FRANCISCO, Calif.—The L. H. Bennett Co., Ltd., distributor of General Electric refrigerators, recently sponsored the Islam Temple shrine luncheon club radio program.

Artists who appeared on the program included Max Dolin, National Broadcasting Co. violinist, and Yehudi Menuhin, boy prodigy of the violin.

A large group of public officials, headed by Mayor Rossi, in addition to the city's leading business men, attended the luncheon, which was arranged by F. M. Rowles.

G. E. DEALER NAMED

BREWSTER, N. Y.—(UTPS)—Bruen & Hughes has been appointed General Electric refrigerator dealer for the northern Harlem Valley district.

Elephant Tie-up

DENVER—The local Kelvinator sales organization has brought elephants into play in advertising its electric refrigerator.

At the Al G. Barnes circus which appeared here recently, a Kelvinator sign was carried by one of the elephants in the parade at every performance. Another sign was hung above the band stand.

SYNTHANE DISTRIBUTOR FOR ST. LOUIS NAMED

OAKS, Pa.—Synthane Corp., manufacturer of Synthane laminated bakelite, has appointed the Industrial Products Sales Corp., St. Louis, Mo., as distributor, covering St. Louis and surrounding territory, on the recommendation of J. B. Rittenhouse.

BIENVENU APPOINTED G. E. SALES MANAGER IN FRANCE

LOS ANGELES—Louis de Gonzague Bienvenu, formerly connected with the George Belsey Co., Ltd., distributor here for General Electric refrigerators, has joined the distributorship for "Monitor Tops" in Paris, France, as general sales manager.

When a farewell banquet was tendered Mr. Bienvenu by his associates, he was presented with a traveling bag and, in addition, was handed a duplicate of the first order he obtained and a duplicate of his first check.

Sales Manager Bienvenu is an accomplished linguist.

OBTAIN G. E. FRANCHISE

ST. AUGUSTINE, Fla.—Fred J. Langston and J. Everett Carnes have been named distributors of General Electric refrigerators for St. Johns county.

McCord Announces a New Line of Copper-Fin COMMERCIAL EVAPORATORS

Not Just Another Evaporator—An Important New Achievement!

BUT you must know that or McCord would not be offering it. For 25 years McCord has been a leader in the development and manufacture of heat transfer equipment. Now McCord enters the commercial evaporator field with units that set up an entirely new standard of efficiency.

Actual tests have proved it far higher in efficiency than most evaporators you have used before. The all-copper construction of the fins and tubes—the positive metal to metal contact between them—and scientifically correct fin spacing determined after exhaustive tests—all contribute to this sensational increase in performance.

Nor has appearance been neglected. Without sacrificing one single feature in efficiency, McCord has made these evaporators worthy of your quality equipment. Fins and tubes are tinned to add good looks as well as protection to the copper and prevent corrosion which soon destroys original appearance.

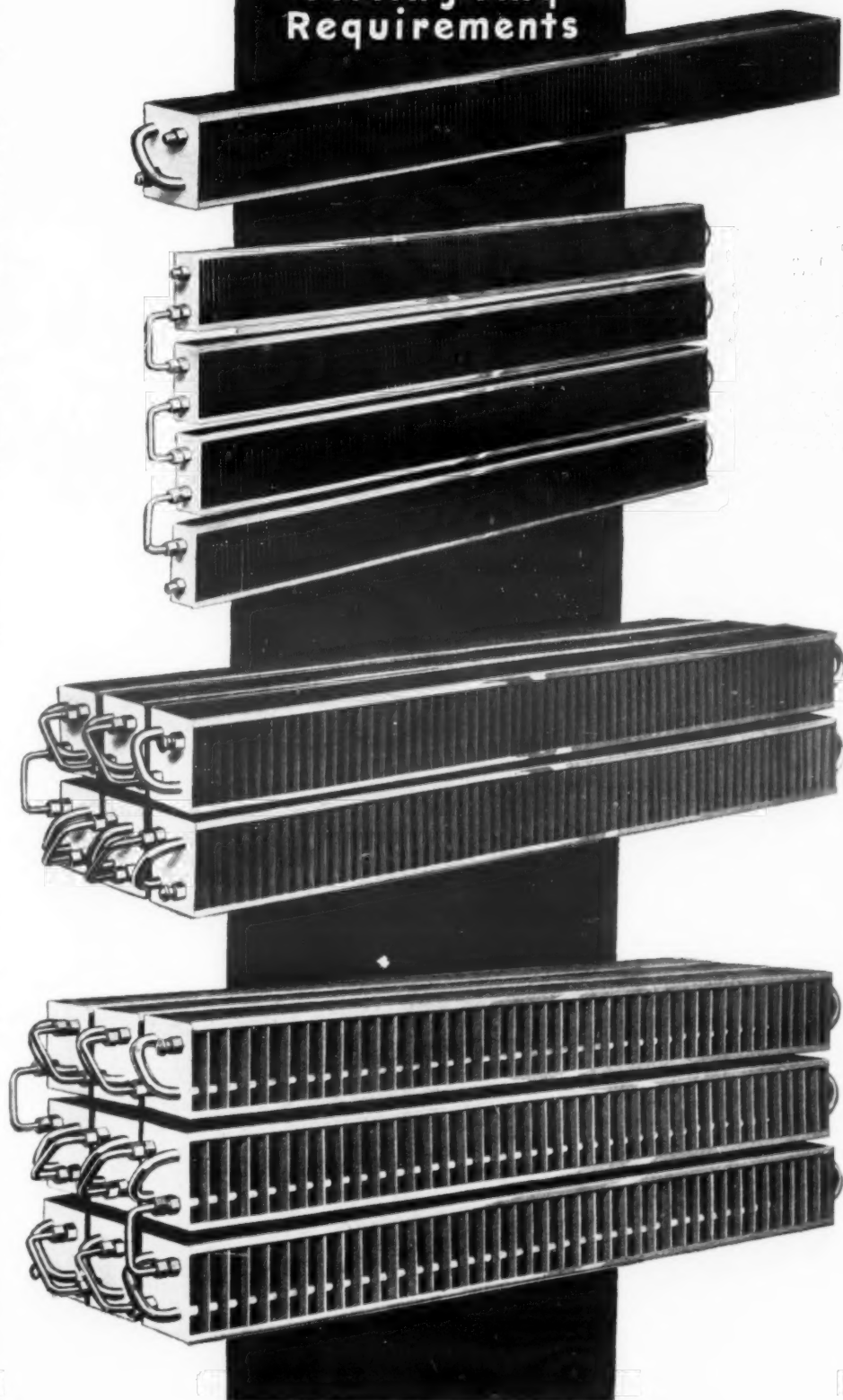
And the increased efficiency of McCord evaporators enables you to use a smaller unit to achieve the proper performance—effecting a material saving in cost and permitting more usable space. Or you can use the same size as recommended by others and lower your operating cost because of the added capacity.

Standardization has made it possible for McCord to provide 297 practical combinations with only 36 sizes, taking care of any known requirement.

A new Catalog and Operating Performance Data Book is just off the press. This book records the results of what we believe to be the most complete and comprehensive survey ever made of evaporator operating performance. A copy of this book will be sent to you on request. Engineers, dealers and salesmen will find it an invaluable yardstick in figuring evaporator sizes.

Order a McCord Fin Evaporator for your next commercial job. Prices are competitive. Shipments made within 24 hours of receipt of order.

ONLY
36 SIZES
Provide 297
Combinations
Fitting Any
Requirements



REFRIGERATION ACCESSORIES DEPARTMENT

McCord

RADIATOR & MFG. CO.—DETROIT, MICH.

G. E. 'TOPPERS' SEEK VACATIONS ON ISLES

CLEVELAND, Ohio—General Electric refrigerator salesmen who attain the "Topper" class will be treated to a one-week vacation in the tropics during the third or fourth week in January, officials of the refrigeration department of the General Electric Co. have announced.

To achieve the position of a "Topper," G. E. domestic and commercial salesmen must sell \$25,000 worth of refrigerators from Jan. 1 to Dec. 31, and apartment house salesmen \$36,000 worth of refrigerators in the calendar year of 1931 as described above.

The eligibility list includes all retail salesmen who are paid on the regular commission basis and who work outside; all retail salesmen who are employed by central stations or dealers; and dealers who themselves sell the required amount.

To qualify for the trip the sales record is to be entered on a special "Toppers Club" record card which must be audited by the sales manager, signed by the distributor and sent in to the merchandising division at Cleveland not later than the end of the first week in January, 1932.

Men from the western zone will leave their distributor's key city and go to Los Angeles. They will visit the motion picture studios in Hollywood, make a short trip across the border to Tia Juana, and then spend the rest of the vacation on Catalina Island.

The "Toppers" from the southern selling zone will go to New Orleans from their distributor's key city. After a short trip around the city they will board one of the ships of the Great White Fleet for a cruise to Havana, where they will spend the remainder of the vacation.

Northern zone salesmen who make their quotas will assemble in New York City, and after seeing the sights of America's largest city they will board a liner for a two-day trip to Bermuda, where entertainment has been arranged to occupy the rest of the vacation period.

'GREATER MIAMI' DEALERS ORGANIZE BUREAU

MIAMI—(UTPS)—Electric refrigerator distributors and dealers in Miami, Miami Beach, Coral Gables, Hialeah, and other towns in the greater Miami area have organized the refrigerator division of the Electrical League of Greater Miami, Inc.

Jack Justice of George Patterson, Inc., General Electric branch, was elected temporary chairman, and F. J. McGinnis of F. J. McGinnis, Inc., Kelvinator branch, temporary secretary. A constitution and by-laws will be presented at the next meeting, at which time permanent officers may be elected.

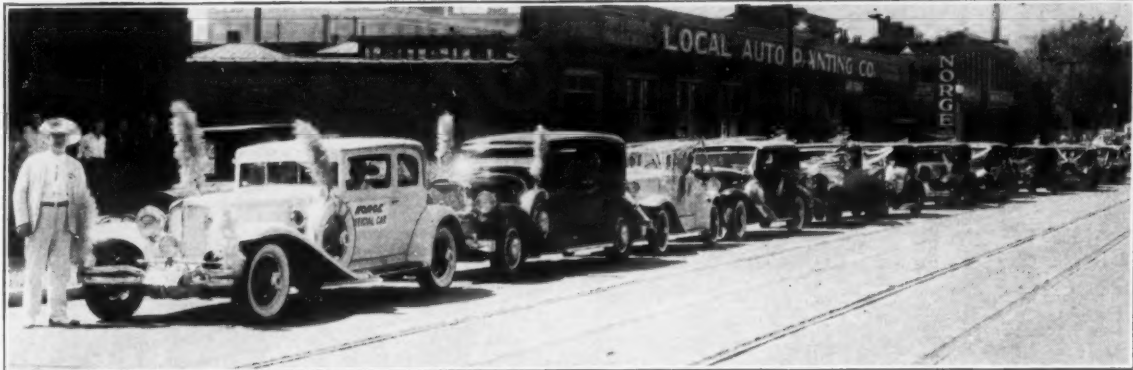
FORMER ABSOPURE HEAD NAMED PUBLISHER

NEW YORK CITY—David Brown, former president of General Necessities Corp., manufacturer of the Absopure electric refrigerator, has been appointed publisher and president of *The American Hebrew*, which is published here.

APARTMENT BUYS SERVEL

MONTGOMERY, Ala.—(UTPS)—Serval refrigerators have been installed in the Martha Stuart apartments by E. E. Forbes & Sons.

Norge Racers, Cars Go to Picnic



Twenty-three St. Louis youths competed in the one-mile Norge marathon preceding the dealer picnic sponsored by E. E. McMullin, Norge distributor. The runners are shown in the upper picture and the auto parade headed by Mr. McMullin in the lower photograph. More than 110 automobiles participated in the parade which was led by the official Norge car.

NORGE DISTRIBUTOR HOLDS PICNIC FOR SALES FORCE

ST. LOUIS—Norge electric refrigerator dealers in St. Louis and surrounding territory prepared for the final drive in the marathon contest, which ends Sept. 15, with a picnic at Majestic Gardens August 29.

E. E. McMullin, president of Norge Co. of Missouri, distributor, was host to the dealers and their families at the picnic and acted as master of ceremonies for the program which was held at the picnic grounds.

A parade of 110 automobiles was held to the gardens. The procession was led by Mr. McMullin's demonstration car. The three best decorated autos in the parade were awarded prizes.

Another feature of the pre-picnic program was a mile marathon run to the gardens in which 23 St. Louis youths competed.

Attendance prizes, including a Norge refrigerator, were given away during the game. Athletic events and contests were on the afternoon program with dancing at night.

Following the picnic, the distributor organization opened its final campaign in the marathon contest with two full page newspaper advertisements and a series of street car cards.

YOUNG NEW VICE PRESIDENT OF NOCARE CORP.

NEW YORK—Herbert E. Young, former vice president in charge of sales of the Grigsby-Grunow Co., has been elected director and vice president in charge of distributor sales for the Nocare Electric Radiator Corp. The company manufactures Nocare automatic electric steam radiators.

Requests for Information

Readers who can be of assistance in furnishing correct answers to inquiries, or who can supply additional information, are invited to address ELECTRIC REFRIGERATION NEWS, mentioning query number.

Moisture-proof Wire

Query No. 492—"Is there any type of enclosed wiring that can be used inside refrigerators that is safe from moisture?"

Answer—American Steel & Wire Co., 208 LaSalle St., Chicago, and Monarch Electric & Wire Co., 622 W. Adams, Chicago.

Single, Twin Compressors

Query No. 493—"What companies manufacture single and twin compressors for household and electric refrigerators?"

Answer—Kulair Corp., 1609 Finance Bldg., Philadelphia; Deissler Machine Co., 31 N. Mercer St., Greenville, Pa.; International Oil Heating Co., 3808 Park Ave., St. Louis; Iceberg Mfg. Co., Gardner, Mass.

Oil Burning Refrigerators

Query No. 494—"What companies manufacture refrigeration units that burn oil suitable for country use?"

Answer—Perfection Stove Co., 7609 Platt Ave., Cleveland, and Crosley Radio Corp., 3401 Colerian, Cincinnati.

Rubber Ice Cube Trays

Query No. 495—"What company can furnish information on ice cube trays with rubber liners?"

Answer—Inland Mfg. Co., Dayton.

Refrigerated Truck

Query No. 496—"From whom can a refrigerated truck be purchased?"

Answer—Larmac Co., Dayton.

Porcelain Cement

Query No. 497—"Who manufactures a cement for patching spots in porcelain?"

Answer—Tuttle's Tite-On Cement Co., 4507 Ravenswood Ave., Chicago.

Gas Charts

Query No. 498—"Where can gas charts of sulphur dioxide, methyl chloride, ammonia, carbon dioxide, and ethyl chloride be secured?"

Answer—American Society of Refrigerating Engineers, 37 W. 39th St., New York City.

Dehydrator Tubes

Query No. 499—"What company manufactures dehydrator tubes to be placed between the glass in triple glass show-cases to absorb moisture and prevent fogging of the glass?"

Answer—Manufacturers of solid carbon dioxide are: Dry Ice Corp., New York City; Mathieson Alkali Works, Inc. Niagara Falls, N. Y., and Solid Carbonic Co., Ltd., New York City.

Manufacturers of equipment are: Brunswick-Kroeschell Co., New Brunswick, N. J.; Carbo-Frost Co., 114 E. Liberty Ave., New York City; Carbondale Machine Co., Carbondale, Pa.; Frick Co., Waynesboro, Pa.; Jackson Engineering Corp., 30 Church St., New York City; Vilter Manufacturing Co., Milwaukee, Wis., and York Ice Machinery Co., York, Pa.

Solid Carbon Dioxide

Query No. 500—"What companies manufacture solid carbon dioxide and what manufacturers provide equipment for making it?"

Answer—Manufacturers of solid carbon dioxide are: Dry Ice Corp., New York City; Mathieson Alkali Works, Inc. Niagara Falls, N. Y., and Solid Carbonic Co., Ltd., New York City.

Manufacturers of equipment are: Brunswick-Kroeschell Co., New Brunswick, N. J.; Carbo-Frost Co., 114 E. Liberty Ave., New York City; Carbondale Machine Co., Carbondale, Pa.; Frick Co., Waynesboro, Pa.; Jackson Engineering Corp., 30 Church St., New York City; Vilter Manufacturing Co., Milwaukee, Wis., and York Ice Machinery Co., York, Pa.

Automobile Refrigerator

Query No. 501—"What company manufactures a small refrigerator which can be placed in an automobile or on a small truck?"

Answer—Meterice, Inc., 2842 West Grand Blvd., Detroit.

Ice Meters

Query No. 502—"Who makes the ice meter which is used in the meter ice purchase plan?"

Answer—Meterice, Inc., 2842 West Grand Blvd., Detroit.

Electric Refrigerator Manufacturers

Query No. 503—"What companies manufacture electric refrigerators?"

Answer—Page 6, Buyer's Guide Section, January 14, 1931, issue. Other companies manufacturing refrigerators and not listed in the directory are: All-American Mohawk Corp., North Tonawanda, N. Y.; Gibson Electric Refrigerator Corp., Greenville, Mich.; Tennessee Furniture Co., Chattanooga, Tenn.; Bohn Refrigerator Co., 1550 University Ave., St. Paul, Minn.; Sanitary Refrigerator Co., Fond du Lac, Wis.; Uniflow Manufacturing Co., Erie, Pa.; Rice Electric Refrigeration, Inc., 36 Flatbush Ave., Extension, Brooklyn, N. Y.

Query No. 504—"Would you furnish us with a complete list of manufacturers of electric refrigeration?"

Answer—Same as Query No. 503.

Refrigerator Meters

Query No. 505—"Who manufactures the meter ice device shown in your paper of June 17?"

Answer—Meterice, Inc., 2842 West Grand Blvd., Detroit.

Display Cases

Query No. 506—"What companies manufacture display cases for refrigerators?"

Answer—Page 10, Buyer's Guide Section, Jan. 14, 1931, issue.

Sales Figures

Query No. 507—"How many electric refrigerators have been sold each year for the past 10 years and how many wired homes are not yet equipped with electric refrigerators?"

Answer—Sales charts shown in Buyer's Guide Section, Jan. 14, 1931, issue.

Instruction Book

Query No. 508—"What book gives instruction for figuring the size of tubing to be used in the installation of multiple systems in apartments and courts?"

Answer—"Household Refrigeration," by H. B. Hull, published by Nickerson & Collins, 435 N. Waller Ave., Chicago.

Orton Ice Cream Cabinets

Query No. 509—"Can you furnish the name and address of the Orton Refrigeration Co. which makes an ice cream freezing and hardening cabinet?"

Answer—All-American Mohawk Corp., North Tonawanda, N. Y.

Manufacturer of Mohawk

Query No. 510—"Kindly advise who manufactures the Mohawk electric refrigerators."

Answer—All-American Mohawk Corp., North Tonawanda, N. Y.

Humidity Charts

Query No. 511—"How may we secure a copy of the new charts and data on humidity and humidity control in air

THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty words or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. All other classifications—fifty words or less, one insertion \$3.00, additional words six cents each. Three insertions \$8.00, additional words sixteen cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Building, Detroit, Mich.

POSITIONS AVAILABLE

EASTERN refrigerator manufacturer, financially responsible, desires services of engineer, on salary plus royalty basis, who has perfected and is ready to have manufactured an absorption type unit operated by gas. We are also in the market for a perfected electric or otherwise operated air cooler for retail stores and homes. Give complete details. All replies held strictly confidential. Box No. 360.

WANTED AT ONCE—We are looking for an experienced jobber salesman to sell a low-priced, high-grade electric refrigerator to distributors. Salary and commission. Permanent connection to right man. Address Box 363.

POSITIONS WANTED

WANTED—Position by experienced electric refrigerator and radio service man. Married. Sober. Industrious. Can assist in sales. Good references. Reasonable salary. G. A. Oyster, 175 W. Oregon Ave., Sebring, Ohio.

FRANCHISE OPEN

MANUFACTURERS may avail themselves of the special rates applicable to The Condenser column to advertise franchise opportunities in specific territories. Advertisements will be inserted under the above heading "Franchise Open." Fifty words or less—only \$3.00 for a single insertion. Three insertions—\$8.00.

conditioning by Milton W. Browne, which you mention on the first page of the Engineering Section of the July 1 edition of ELECTRIC REFRIGERATION NEWS?"

Answer—Mr. Browne, 101 W. Eleventh St., Kansas City, Mo.

Glassware Companies

Query No. 512—"Will you please give us the names and addresses of the Fry Oven Glassware Co., and the Vollrath Vegetable Dish Co.?"

Answer—H. C. Fry Glass Co., Rochester, Pa.; Vollrath Co., Box 519, Sheboygan, Wis.

Home Refrigerator Service Data

Query No. 513—"We once handled the Home electric refrigerator but have never been able to secure a pamphlet giving the instructions for the use and care of the machine. Could you advise as to who could give us these instructions?"

Answer—American Hardware Stores, Fairfield Ave., Bridgeport, Conn., has taken over the servicing of the Holmes machine. The Standard Steel Co., West Haven, Conn., can furnish parts for repairing the refrigerator in question.

Holmes Refrigerator Service

Query No. 514—"Where may we secure instructions for the use and care of the Holmes electric refrigerator? Is any company making parts for it?"

Answer—American Hardware Stores, Fairfield Ave., Bridgeport, Conn., has taken over the servicing of the Holmes machine. The Standard Steel Co., West Haven, Conn., can furnish parts for repairing the refrigerator in question.

Compressor Oil

Query No. 515—"Kindly give me the address of a company that manufactures a dehydrated compressor oil to be used with sulphur dioxide and methyl chloride units."

Answer—Schliemann Companies, 53 Park Place, New York City; Sinclair Refining Co., 45 Nassau St., New York City; Sun Oil Co., 1608 Walnut St., Philadelphia, Pa.; Texas Co., 135 E. 42nd St., New York City; and Vacuum Oil Co., 61 Broadway, New York City.

Production Data

Query No. 516—"I wish to obtain some authentic data on the production of the leading companies during the last few years, together with figures on total small refrigerating machines in service."

Answer—The Buyer's Guide Section, Jan. 14, 1931, issue contains figures on the sale of refrigerating machines during the past 10 years.

Electricity Cost

Query No. 517—"Where may I get information as to the average cost per kilowatt of electricity for the United States?"

Answer—National Electric Light Association, 420 Lexington Ave., New York City.

SALES MANAGER

Available November 1

Leaving nationally-known manufacturer of electric refrigerators

Knows what to do and how to do it

Address BOX No. 362

Electric Refrigeration News

SUBSCRIPTION ORDER

This offer expires Sept. 30, 1931

Electric Refrigeration News
550 Maccabees Building
Detroit, Michigan

September.....1931

Gentlemen:

I want to take advantage of your special offer to send the new monthly publication, REFRIGERATED FOOD NEWS, for one year to all new subscribers to ELECTRIC REFRIGERATION NEWS (issued every week), also to all old subscribers who renew, or extend their subscriptions by sending remittance on or before Sept. 30, 1931, at the old rate of \$2.00 per year (3 years for \$5.00).

I understand that after this date it will cost me an extra dollar to get REFRIGERATED FOOD NEWS, also that after Jan. 1, 1932, ELECTRIC REFRIGERATION NEWS will cost \$3.00 per year.

I am enclosing payment in the form of ☐ Check ☐ P. O. Order ☐ Cash

Name

Attention of or Care of.....

Street Address

City and State.....

Note: This offer applies only to United States and possessions and countries in the Pan-American Postal Union. In all other countries except Canada, new and old subscribers of the paper may take advantage of the old rate of \$2.25 per year to renew for ELECTRIC REFRIGERATION NEWS only. Add \$1.50 for REFRIGERATED FOOD NEWS.

Note to Canadian subscribers: Sorry, but we have to charge you \$5 per year for ELECTRIC REFRIGERATION NEWS and \$2 per year for REFRIGERATED FOOD NEWS on account of the new tariff of five cents per copy.

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

ISSUED EVERY WEEK
VOL. 6, No. 1, SERIAL NO. 129Copyright, 1931, by
Business News Pub. Co.

DETROIT, MICHIGAN, SEPT. 9, 1931

Entered as second class matter
Aug. 1, 1927, at Detroit, Mich.TEN CENTS PER COPY
TWO DOLLARS PER YEARCARRIER TO COOL
RAILROAD TRAINS
BY ENGINE STEAMGaseous Refrigerants
Unnecessary for
New System

NEWARK, N. J.—A new system of air conditioning and cooling for railway passenger trains, employing steam from the engine as the refrigerating energy and water as the sole refrigerating medium, thereby eliminating gaseous refrigerants, is announced by Willis H. Carrier, chairman of the Carrier Engineering Corp.

Mr. Carrier, who is also president of the American Society of Heating and Ventilating Engineers, designed the cooling system for the White House executive offices and the Capitol building.

Cooperating with the Carrier Engineering Corp. are the Safety Car Lighting & Heating Co. of New York, and the Silica-Gel Corp. of Baltimore, which will be associated in this development.

Demonstration Made

The new cooling system for railway cars is being demonstrated in an ordinary passenger coach enclosed in a building in which a temperature of 106° F., and high relative humidity has been created. Within the car the temperature is maintained at 77 degrees, with corresponding moderation in the relative humidity. The test is purposely conducted under extraordinary conditions, as in practice it will seldom be necessary to lower the temperature more than 15 degrees, it is believed.

"The elementary law of physics that water will boil or give off its heat at comparative low temperatures when the atmospheric pressure is reduced, as in high altitudes, is the basis of the new refrigeration development," Mr. Carrier declares.

System Explained

A tank partly filled with water is concealed at one end of the car. Steam drawn from the engine, is forced under pressure past an opening in the upper part of the tank, thereby creating a vacuum within, and causing the water in the lower half of the tank to boil at about 50° F. In boiling, the water gives off heat in the form of vapor which is drawn out of the tank by the suction of the steam, and results in lowering the temperature of the remaining water still further to about 40° F.

This cold water is then circulated through coils concealed in the roof of the car. Air is then drawn over these cooling coils, cooled and dehumidified, and then circulated throughout the car by ducts. From the cooling coils, where

(Concluded on Page 2, Column 1)

Johnston, Taylor of Universal Cooler
Keep Offices Cool in All Weather

By John T. Schaefer

DETROIT—Chief executives of the Universal Cooler Corp. aren't going to be uncomfortable during the hot summer days when they have refrigeration equipment that can be incorporated into an air conditioning system.

Three months ago, the office of G. M. Johnston, president, was provided with air conditioning by the installation of a unit cooler, connected to a remote condensing unit. During the past summer, when outdoor temperatures ranged up to 100° F., and departments on the second floor of the building were well above 100° F., Mr. Johnston's office was kept below 85° F., and comfortable humidities maintained.

Now the new office of J. W. Taylor, vice president in charge of sales, is being equipped with a similar system. It is a 12x18 ft. windowless room on the second floor, directly above the first-floor manufacturing operations.

A cooling unit consisting of a large double by-pass condenser is mounted with a fan behind it, just outside the room and near the ceiling. The 1½ hp. Universal Cooler water-cooled condensing unit which refrigerates Mr. Johnston's 16x20 ft. office, will also be connected to Mr. Taylor's equipment.

Horizontal grills, flush with the walls, conceal the cooling unit from the interior of the new office. Two inches of cork on the floor both deaden the

Electrolux Designs
Ice Cream
Cabinet

EVANSVILLE, Ind.—The announcement by Electrolux Refrigerator Sales, Inc., of the production of a 4-hole ice cream cabinet marks the first venture of the Electrolux Co. into the field of commercial refrigeration.

The cabinet, designated as model EA-IC, will be cooled by a standard Electrolux unit. It is of double-bank design and has four square sleeves equally suitable for standard round 5-gallon cans or packaged goods. The cabinet stands 30 in. high without lids; is 40½ in. wide, and 32½ in. deep.

Armstrong type LK corkboard insulation, sealed with Hydrolene, is used throughout—3 in. of it in the top, 3½ in. on the front sides, 4 in. on the rear side, and 5 in. on the bottom.

The top of the cabinet is of Panelite. Composition lids, insulated and covered with metal, and equipped with a flexible rubber sealing ring, cover the four sleeves. The side panels are of No. 1 furniture steel.

The Electrolux cabinet is of the self-contained type, the unit being inclosed in the rear of the box.

BELLOWS SEAL STEM
OF NEW PENN VALVE

DES MOINES, Iowa—Engineers of the Penn Electric Switch Co., here, have designed a new water regulating valve, type XLI, which incorporates such refinements over the former type XL, as the adoption of a small syphon bellows for packing the valve stem. It is intended for operation with all refrigerants except ammonia, according to the announcement.

The use of a bellows seal cuts down friction, the designers point out, and makes possible a closer differential between opening and closing points than was possible in the original design. This closer differential results in water economy, since it closes at only a slightly lower head pressure than is required to open it, they claim.

The valve opens gradually as the head pressure rises, and closes as the head

(Concluded on Page 12, Column 1)

CREAMERY PACKAGE PLANT
UNDER WAY IN WISCONSIN

LAKE MILLS, Wis.—Workmen are completing construction of a new \$35,000 addition to the original Creamery Package Mfg. Co. plant here. The new structure will house a machine shop for the manufacture of dairy machinery.

Of brick and steel construction, the building is 60 ft. wide and 154 ft. in length. There are no interior columns in the plant, and a clear height of 25 ft. is provided under the steel trusses.

BAKER ABSORBS
FACTORY, STAFF
OF ICELECT CORP.To Manufacture Both
Domestic, Industrial
Machines

OMAHA, Nebr.—Announcement was made here last week by J. L. Baker, president of the Baker Ice Machine Co., that the Icelect Corp., manufacturer of electric refrigerators, has been merged into the Baker organization. Albert Schneider, president of the Icelect Corp., joins the Baker staff as engineer in charge of the Icelect division of the Baker Ice Machine Co.

The Baker Ice Machine Co. has been manufacturing ammonia refrigeration since 1905, while the Icelect Corp. has furnished commercial and domestic units since 1922.

The merger serves to complete the desire of the Baker management to correlate household refrigeration with its commercial and industrial refrigeration up to 100 tons.

The Baker people also announce a freight car refrigeration system that has been in development for the past five years.

During the 18 months in which this equipment has been in production, more than 100 have been placed in service, Mr. Baker reports.

The company is shipping many of these systems to the North American

(Concluded on Page 3, Column 2)

GROTHE TRUCKS USE
SERVEL, ICEMASTER

PHILADELPHIA — IceMaster and Servel compressors direct connected to Kohler or Universal gas engines provide refrigeration in the ice cream and meat trucks made by the John J. Grothe Corp. of this city.

Six inches of cork board insulation keeps temperatures in the bodies. Frames are made of Eastern Oak. The ice cream bodies are built in capacities from 250 gallons to 2,000 gallons, depending upon the demands of the routes for which they are intended, according to F. J. McDonald, general manager of the company.

This company also furnishes refrigerated truck bodies for ice and salt, solid carbon dioxide, and Kold Kans.

Frigidaire Adds 41
Dry Coils to Line

DAYTON—Forty-one dry expansion type coils have been added to the line of Frigidaire commercial products, it has been announced by officials of Frigidaire Corp.

The new coils are designed to supplement, but not supplant, the flooded type coils. They are intended chiefly for use where particular operating conditions indicate advantages over the flooded type coils, according to Frigidaire engineers.

The new shallow coils are expected to be useful for installation along the tops or under the shelves of display cases, where visibility and space are vital factors.

CLEVELAND'S HIGBEE STORE
GETS AIR CONDITIONING

CLEVELAND—A complete air conditioning system has been installed in the large department store now being finished for the Higbee Co., here. The equipment was installed by the Cooling & Air Conditioning Co., under the direction of D. P. Hoadley, chief engineer.

The system provides washed, cooled (or warmed in cold weather), and humidified air to the mezzanine, first, and second floors of the building, the air being distributed to the rooms through vents in the ceilings. Smaller air conditioning plants are located in various parts of the building where ordinary ventilation would be insufficient.

The new system has received the approval of Cleveland health officials. It required 1,250,000 lbs. of iron, and has a capacity of 600,000 cu. ft. of air per minute, according to Mr. Hoadley.

Flintlock Building
Oval Tube Steel
Condensers

DETROIT—Steel has been adopted by Flintlock Corp. for the manufacture of natural draft condensers for Servel's 9 cu. ft. hermetic refrigerator.

The new condenser is more durable because of its steel construction, and tests over a period of two years indicate that it will not corrode with common refrigerants, Flintlock engineers claim.

Another feature of the new condenser is the use of ¼x9-16 in. oval tubes to reduce the restriction of air flow, and increase the wiping (and therefore cooling) effect on the air passing across the wide side of the oval tube, they point out.

The steel condensers are made on the same design which characterizes all Flintlock condensers. Holes in the fins are punched with flanges extending on one side. These are stacked with the flanges all in one direction, and compressed by air pressure, so that the flanges form tubes for the passage of the refrigerant.

ARBORITE NOW SOLD
TO NATIONAL MARKET

NEW YORK CITY—Plans for national advertising and distribution of Arborite insulation are now being completed, according to J. H. Browne, president of the Wood Fibre Board Corp., with offices here.

Since the company was started early in 1930, the insulation has been sold chiefly to an industrial market, he said, but this summer the field sales force has been increased from four to 12 men, under J. M. Kamps, general sales manager, and a campaign started to place the product with dealers.

Shipments of Arborite for the first half of this year amounted to 10,000,000 sq. ft., which is four times as much as for the first half of 1930, and greater than the entire 1930 production, Mr. Browne stated. The initial output of 300,000 sq. ft. for January, 1930, has been increased every month since then, and now approximates 3,000,000 sq. ft. per month, he said.

The insulation has been used in refrigerated freight cars by the Fruit

(Concluded on Page 2, Column 5)

WESTERNERS BUILD PLANT
FOR COIL MANUFACTURE

LOS ANGELES—A new \$75,000 factory has just been finished at 1911 E. 51st St., here, for the Associated Piping and Engineering Co., a new concern which will build pipe coils for the refrigeration industry. The company is headed by George Hunniston, president; Fred Tressel, vice president; and W. I. Hunniston, secretary and treasurer.

N.E.M.A. Men Will Meet To Elect
Sectional Officers, To Hear Swope

Report just released by N. E. M. A. headquarters of the Refrigeration Division meeting at Dayton, July 15.

NEW YORK CITY—All sections of the National Electrical Manufacturers Association will elect officers for the coming year during the annual meeting of the association, Sept. 15 to 18, at N. E. M. A. headquarters at the Hotel Commodore. After the selection of new officers, each section council is to select nine of its number as members of the board of governors for a one-year term.

The Refrigeration Division will meet at 9:30 Wednesday morning, Sept. 16, in the Hotel Commodore.

Arrangements have been made with the International Association of Electrical Inspectors, which convenes on Monday, Sept. 14, so that matters in the I. A. E. I. program of interest to manufacturers will be presented on Monday and Tuesday before the N. E. M. A. meetings.

The lone formal address of the meeting will be by Gerard Swope, president of General Electric, at the Wednesday night banquet. He is expected to give his picture of certain conditions of fundamental importance to industry, and to suggest means of coping with present problems.

The association's board of governors will meet Friday morning, while the policies division will convene on Friday afternoon, Sept. 18, to conclude the events of the week.

McCORD MARKETS
NEW COILS FOR
COMMERCIAL USESectional Cooling Units
Can Be Assembled
In Many Sizes

DETROIT—Six hundred different commercial cooling units can be assembled with combinations made up with new sectional evaporators which the McCord Radiator & Mfg. Co. has developed and is now producing, according to Morrell Dunn, vice president. He showed that a wide range of cooling coil sizes can be built up by a commercial installation man from a comparatively small stock of McCord sections.

The sectional units are furnished in two widths, 3x6 in. and 6x6 in., and in any length of 1-ft. multiples up to 8 ft. long. The coils may be assembled with 3x6-in. sections, 6x6-in. sections, or with both 3x6- and 6x6-in. sections in various combinations.

Fins of .025-in. Copper

The new evaporators are fabricated with .025-in. copper fins, spaced at ½, 1, or 1½-in. intervals along the tubing. Copper tubing is used in evaporators for sulphur dioxide and methyl chloride, while Bundy Weld steel tubing is used for ammonia coils. All tubing is ½-in. O. D., with .035-in. walls, tinned on the outside.

McCord's research on the new evaporators indicates that the heat transfer from the air to fins, tubing, and refrigerant is governed chiefly by the contact between the tube and fins, and the material of which the fins are made. Evaporators have practically the same capacities with Bundy Weld steel tubing as with copper tubing, McCord engineers say.

Tubes Soldered to Fins

Tube holes in the fins are flanged, the tubes bent in hairpin shape, and forced through the fins with a driving fit. The unit is then baked to solder the tubes and fins together, giving a metal-to-metal bond which McCord engineers claim is not affected by contraction or expansion of the metal due to temperature differences. Brass angles extending along all four corners of the sections are soldered to the fins, serving to keep the fins rigid, and to maintain the correct fin spacing.

The evaporators are steam cleaned and dried in the McCord plant, and fittings sealed with lead caps to keep the units clean, and protecting the fittings during transit.

Individual sections up to 6 ft. are shipped in fibre board containers, while the 7- and 8-ft. units are crated to conform to shipping regulations.

Inlet and outlet connections are S. A.

(Concluded on Page 2, Column 4)

DAYTON—The Refrigeration Division and its committees were guests of the Frigidaire Corp. at the Dayton Country Club, Dayton, Ohio, July 15, 1931. The committees met in the morning and the division during the afternoon.

The committee meetings in the morning were on codes and ordinances, commercial practices, technical committee, and the sub-committee on patents.

The division met in the afternoon with the following members in attendance: Louis Ruthenburg, Copeland Products, Inc.; E. G. Blechler and Harry Williams of Frigidaire Corp.; T. K. Quinn and P. B. Zimmerman of General Electric Co.; George W. Mason, Kelvinator Corp.; Howard E. Blood, Norge Corp.; Frank E. Smith, Servel, Inc.; C. E. Allen, Carl D. Taylor, and W. F. Swezey of Westinghouse Electric & Mfg. Co.; Glenn Muffy and E. S. Aumend of the N. E. M. A.

The industrial research committee's plan for individual member cooperation with the Frozen Foods Association was unanimously approved by the division. The plan recommends that the individ-

(Concluded on Page 3, Column 1)

CARRIER CORP. PLANS STEAM COOLED TRAIN

(Concluded from Page 1, Column 1)

it acquired heat in cooling the air, the water is returned to the tank. The portion of the water that had been vaporized passes through condensing coils and is likewise returned to the tank. The whole cycle is repeated, the system being almost completely automatic, Carrier engineers point out.

The fact that steam is used to refrigerate the water, eliminates the necessity for providing considerable extra electric power for the operation of a refrigerating machine as has been the case with previous systems. Other advantages claimed are lighter weight and less space occupied, as well as low maintenance cost.

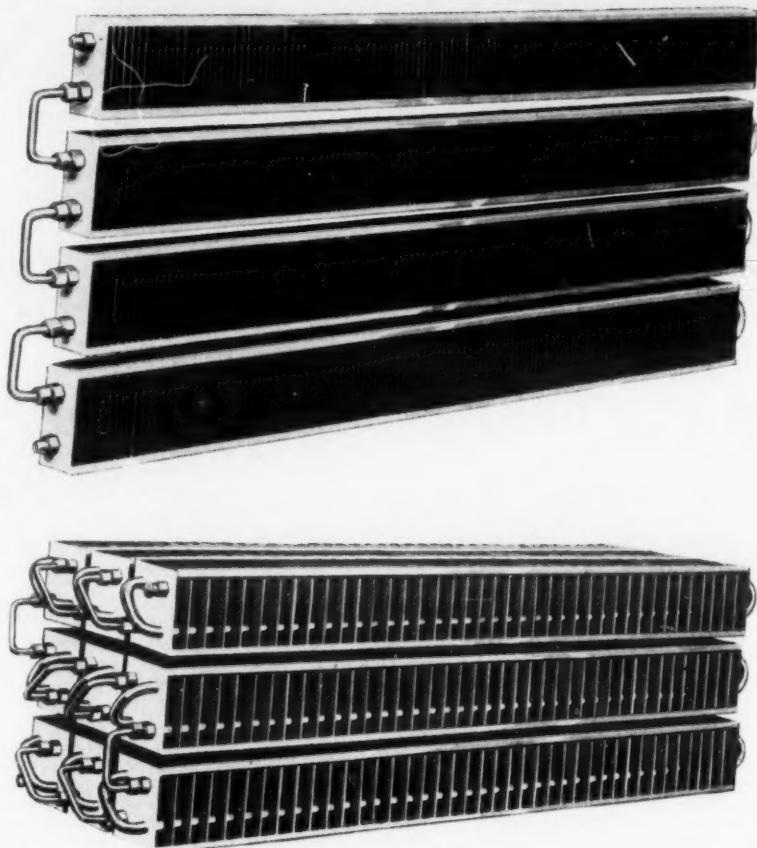
"Approximately 2,000 cu. ft. of conditioned air per minute is provided for in each car, affording a complete change of air every minute. The refrigeration capacity in each car is equivalent to about five tons of melting ice per 24-hour period," Mr. Carrier reports.

A set of heating coils is also a part of the new system, permitting its use in additional elements of humidification the winter months to supplement present heating facilities and provide the and ventilation, he stated.

Seventeen railroad men attended demonstrations of the system, representing Pullman; Chicago & Northwestern; New York Central; New York, Chicago, & St. Louis; A. C. F.; Chicago, Milwaukee, Rock Island; C. & O.; and Northern Pacific lines.

FILTRINE FILTERS for ELECTRIC WATER COOLERS
GUARANTEED
FILTRINE MFG. CO.
49 Lexington Ave. - Brooklyn, N. Y.
Manufacturers of filters and coolers in all sizes.

Flexibility in Sectional Evaporators



McCord's new sectional evaporators may be combined in a wide variety of commercial cooling units. The top picture shows four 3x6-in. sections with 1/2-in. spacing assembled for installation. Lower view shows nine 6x6-in. sections with 1 1/2-in. spacing.

McCord Announces Commercial Coils

(Concluded from Page 1, Column 5)

E. 1/2-in. flared male pipe fittings, while the coupling bends are also 1/2-in. flared pipe fittings, such as approved by the A. S. R. E. and Underwriters' Laboratories. One coupler and one spacer are furnished with each section.

McCord engineers designed couplings to space the sections at distance of 1 in. from each other, believing that this extra space encourages air turbulence between the fins, and results in greater efficiency.

Much of the testing and research on the new evaporators was done in the laboratories of George B. Bright Co., where complete tables of B.t.u. capacities were determined for the various sizes.

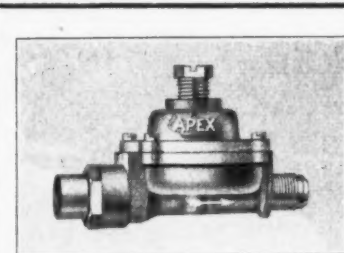
Tests indicated, among other things, that the value of "K" in B.t.u.'s per hour per sq. ft. per degree temperature difference does not remain a constant quantity, but varies considerably, having large values for small temperature differences, and small values for large temperature differences, according to Robert Doremus of the Bright staff.

"Doubling the temperature itself does not necessarily double the quantity of heat handled," Mr. Doremus said, "as it has been shown by test that the value of 'K' is variable."

Some of the technical facts of evaporator design revealed by research work done on these new cooling units by engineers of George B. Bright Co. will be presented in the next issue of the Engineering Section.

NEW JOB PRINTING PLANT HAS CARRIER SYSTEM

LOS ANGELES—A Carrier air conditioning system is being installed in the new job printing plant of the Los Angeles Times here. The installation is being supervised by D. C. Lindsay of the main office of the Carrier Engineering Corp., Newark, N. J. The equipment will control the temperature and humidity of the air, in addition to cleaning and distributing it.



Apex Automatic Refrigeration Specialties

Expansion Valves, Pressure Control Water Regulators, Gas Pressure Regulators, and Water Pressure Regulators.

APEX REGULATOR COMPANY
Division of
FISHER GOVERNOR COMPANY
MARSHALLTOWN, IOWA

ARBORITE NOW SOLD TO NATIONAL MARKET

(Concluded from Page 1, Column 4)

Growers' Express Co. at Alexandria, Va., and for the same purpose by the General American Tank Car Co.

General Electric Co. is now being supplied with Arborite for unit top insulation, while Grigsby-Grunow uses it for unit top insulation, corner posts, and door wedges.

Since export of the insulation was started four months ago, shipments have been made to 15 foreign countries, according to Mr. Browne. Its market there is largely for acoustical purposes.

The most recent activity of the company's engineers is the development of a special light density board, weighing 11 lbs. per cu. ft., with a heat conductivity of .26, Mr. Browne claims.

Arborite insulation is manufactured in the company's plant at Lisbon Falls, Me., where a mixture of 85 per cent of spruce and 15 per cent of soft wood is made into a pulp in cylinders gauged to grind only the definite lengths of fibre suitable for the insulation.

From a stock chest, where the material is sized for water-proofing, it goes into Oliver forming machines whose vacuum cylinders shape the wet fibre into their desired lengths and thicknesses. Then, in the presses, the water is removed, and the slabs go onto rollers where they are cut off in 20-ft. lengths.

Next, in a multiple dryer, all but two per cent of the moisture is removed, and the insulation is ready for the battery of saws which cut it into board lengths suitable for shipping. Finally, the fabricating department glues the laminations together, and they are trimmed, notched, and bevelled for use.

Stockholders and directors of the Wood Fibre Board Corp. include the following men: Julius H. Barnes, chairman of the U. S. Chamber of Commerce; Edgar Rickard, chairman of board of the Wood Fibre Board Corp. and president of the Pejepscot Paper Co., Lisbon Falls, Me., with which it is affiliated.

H. A. Jackson, president of the Chicago Pneumatic Tool Co.; John W. Doty, president of the Foundation Co.; William Butterworth, president of Deere & Co. and president of the U. S. Chamber of Commerce; Thomas Crimmins, president of the Thomas Crimmins Contracting Co.; W. H. Aldridge, president of the Texas Gulf Sulphur Co.

Malcolm B. Stone, treasurer of the Ludlow Mfg. Co.; Evan Randolph, vice president of the Philadelphia National Bank; Gilbert G. Browne, member of White, Weld & Co., and John Nickerson, president of John Nickerson Co.

ALL SIZES OF REFRIGERATION SHOWN IN B-K FOLDER

NEW BRUNSWICK, N. J.—The complete line of refrigeration equipment offered by the Carrier organization is illustrated in a new booklet just released by Brunswick-Kroeschell Co.

The machines range from the B-K Junior methyl chloride condensing unit rated at about 1-20 ton, to the large Carrier centrifugal machine for air conditioning installations. Methyl chloride, carbon dioxide, carrene, and ammonia are the refrigerants used.

Can you use a
corrosion-resisting
WHITE METAL
that is
EASY to WORK?



Other Anaconda Products used by the Electric Refrigeration Industry include:

Copper, Brass, Bronze and Everdur in sheets and strips.

Free-turning Brass Rods. Brass, Tobin Bronze* and Everdur* die pressed parts and forgings for valves and fittings.

Everdur* in the form of thin sheets and rods for parts in contact with corroding agents.

Where strong, non-rusting screws are needed and white metal is not essential, they can be obtained in Everdur* from leading fabricators.

*Trade-marks Reg. U. S. Pat. Off.

AMBRAC is a high-strength, corrosion-resisting alloy composed principally of copper and nickel. It is completely rust-proof, and being white clear through, its lustrous, silvery appearance can be maintained indefinitely with ordinary care. Unlike other high-strength white metals, Ambrac is not refractory, but can be worked almost as easily as brass. It spot welds perfectly, and resistance welds made with it are remarkably strong. Ambrac Metal is available in the form of sheets, wire, rods, tubes and drawn mouldings for the fabrication of screws, bolts, racks, shelves and metal trim. Detailed information on request.

THE AMERICAN BRASS COMPANY

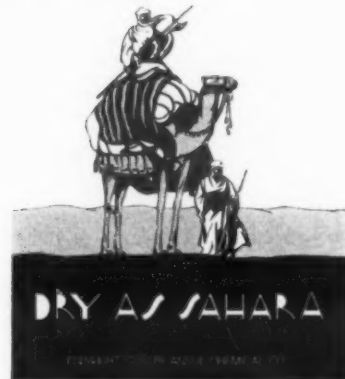
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

Canadian Mill: ANACONDA AMERICAN BRASS LTD.
New Toronto, Ontario

AMBRAC METAL

TRADE-MARK REGISTERED U. S. PATENT OFFICE

ANSUL Sulphur Dioxide



ANHYDROUS SULPHUR DIOXIDE

ANSUL CHEMICAL COMPANY
MARINETTE - WISCONSIN

NEMA ISSUES REPORT ON SUMMER MEETING

(Concluded from Page 1, Column 5)

ual members lend their support by joining and forming a refrigeration division of that association. Several of the division members indicated their intention of making application for membership in F. F. A.

The division was of the opinion that the public acceptance given Louis Ruthenburg's preliminary report on "Food Losses in Retail Stores" indicated that the continued collection and distribution of information concerning food losses would be of service to both the public and the manufacturers.

This activity was assigned to the industrial research committee.

That the National Fire Protection Association at its meeting May 14, 1931, voted to support the A. S. A. code, and abandoned effort to adopt an ordinance, was reported by the codes and ordinances committee.

A number of states, cities, and municipalities were reported to have been materially assisted by Glenn Muffy in developing and coordinating the details and technical aspects of their contemplated refrigeration codes and ordinances.

Mr. Muffy announced that he is ready to assist any state, city, or municipality which contemplates the development of a refrigeration code or those wishing to correct or modernize their present code.

A code of ethics presented by the commercial practices committee was accepted by the division for submission to counsel for approval. It was decided that after review by counsel the code was to be submitted to the members, together with his comments and suggested corrections for adoption by letter vote.

A study of time financing of refrigerators and refrigeration equipment was recommended by the commercial practices committee. The division approved the recommendation and assigned the subject to that committee for investigation and report.

The work of the Department of Commerce in standardizing colored sanitary ware was approved in principle by the division upon the recommendation of the technical committee. The division of trade standards of the Bureau of Standards, Washington, D. C., is to be informed of this action.

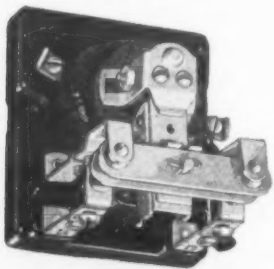
The division approved the development of nomenclature of domestic and small commercial machines and assigned the subject to the technical committee for development and presentation.

Harry M. Williams, John Wiley, Jr., and Glenn Muffy were nominated by the division to a joint N. E. M. A.-Refrigeration Machinery Association committee, to which will be assigned the study and development of ratings for small commercial machines. This joint committee was suggested by the American Society of Refrigerating Engineers. The nominations were subsequently approved by the standards committee of N. E. M. A.

ALLEN-BRADLEY MAKES 2 ADDITIONAL CONTACTORS

MILWAUKEE, Wis.—Allen-Bradley Co., announces two additions to its line of a. c. and d. c. contactors. Bulletin 201 Form D (d. c.) and Bulletin 701 Form D (a. c.) are provided with "down" or "back" contacts against which a single pole contactor arm is held when the operating coil is not energized.

When the coil is energized, the circuit is opened. This type of contactor is



New up-and-down contactor

made especially for relay work, street lighting systems, and traffic signal work.

Bulletin 201 Form E (d. c.) and Bulletin 701 Form E (a. c.) are new two-wire, single pole, up-and-down contactors. They are provided with a double set of single pole stationary contacts and a double contactor on the contactor arm.

The two circuits are insulated from each other, one being normally closed and the other open. When the operating coil is energized, this connection is reversed. This method of control is used when the double throw, single pole, magnetic operation for two-wire separate or common control is necessary.

MASTER ELECTRIC DEVELOPS NEW HEAT CIRCULATOR

DAYTON, Ohio—A new type of heat circulator has just been announced by the Master Electric Co., here. By means of a four-blade electric fan, driven by 1-400 hp. induction type motor, the air is circulated over the heating element and distributed.

Baker Ice Machine Buys IcElect

(Concluded from Page 1, Column 3)

Car Co., Blue Island, Ill., which assembles and installs them in refrigerated freight cars. Production is now being pushed rapidly on this division of manufacture, according to Mr. Baker.

Baker engineers have also produced a refrigerating system for motor trucks. Both ammonia and methyl chloride are used in this application, the latter having maintained a temperature of 18° below zero in moving trucks. The compressor is operated by an automatic gasoline engine.

Contracts have been awarded for the construction of a new wing to the Baker factory to cost \$100,000 with machinery. This will be used exclusively for the production of IcElect refrigerators and ice cream equipment. The factory will also turn out the IcElect sealed unit. This part of the production will be under the management of Albert Schneider.

"In spite of the depression at this time," C. A. Baker, vice president and general manager, states, "the business of the Baker company has been good, necessitating increased production during the year. We expect to have the IcElect division on production basis in 60 days, and by the end of the year will be employing an additional 400 people, which means an added payroll in Omaha of approximately one million dollars annually."

"Our sales method for the new unit will follow closely the plan used with the Baker ice machines. Baker representatives in this country as well as in Mexico and many foreign countries will handle the additions to our line. The sealed-in unit with the double compressor will be featured in domestic units. Preparations are now completed for a national advertising campaign."

"With the machinery installed in the electric division, we will be able to produce 10,000 of the domestic refrigerators per month, and expect to be on full production within the next six months," he said.

"All refrigerating machinery for both the ammonia and electric refrigerators will be made at the Baker plant, Evans and Fourteenth Sts., here."

Albert E. and Fred J. Schneider, owners of the IcElect patents, are also owners of the Schneider Electric Co., here. Fred Schneider will continue the electrical business.

The Baker Ice Machine Co. is capitalized for \$2,000,000. Its personnel includes: J. L. Baker, founder, president; C. A. Baker, a son, vice president; Charles Knox, vice president; R. L. Baker, a son, treasurer; F. J. Vette, secretary; and Albert E. Schneider, engineer in charge of the electric refrigerator division.

DRY-ICE CONTROLS AGING OF RIVETS FOR AIRPLANES

SEATTLE, Wash.—Dry-ice is used in the manufacture of airplanes at the Boeing Airplane factory, building army, navy and commercial planes in wholesale quantities. Dry-ice refrigeration is used as a method of arresting the age-hardening of duralumin rivets after heat-treating.

In constructing the airplanes at the Boeing plant the dual rivets are heat-treated in molten salt at a temperature of 950° F. and then quenched.

Means of arresting the hardening through low-temperature were required, and tests made with one-eighth-inch rivets were started. They were heat-treated, quenched and immediately placed in a temperature of approximately 10° F. After a week, examination revealed that the rivets had not aged appreciably, and they had hardened only slightly, even after a two weeks' interval.

ELLIOTT SERVICE CO. MAKES EXECUTIVE CHANGES

NEW YORK CITY—George J. Kadel, president of the Elliott Service Co., industrial education specialists here, has announced the promotion of R. T. Solensten, former manager of the industrial division to the vice presidency. J. O. Emerson, editor of the *National Board of Foremanship* has been named manager of the industrial division to succeed Mr. Solensten.

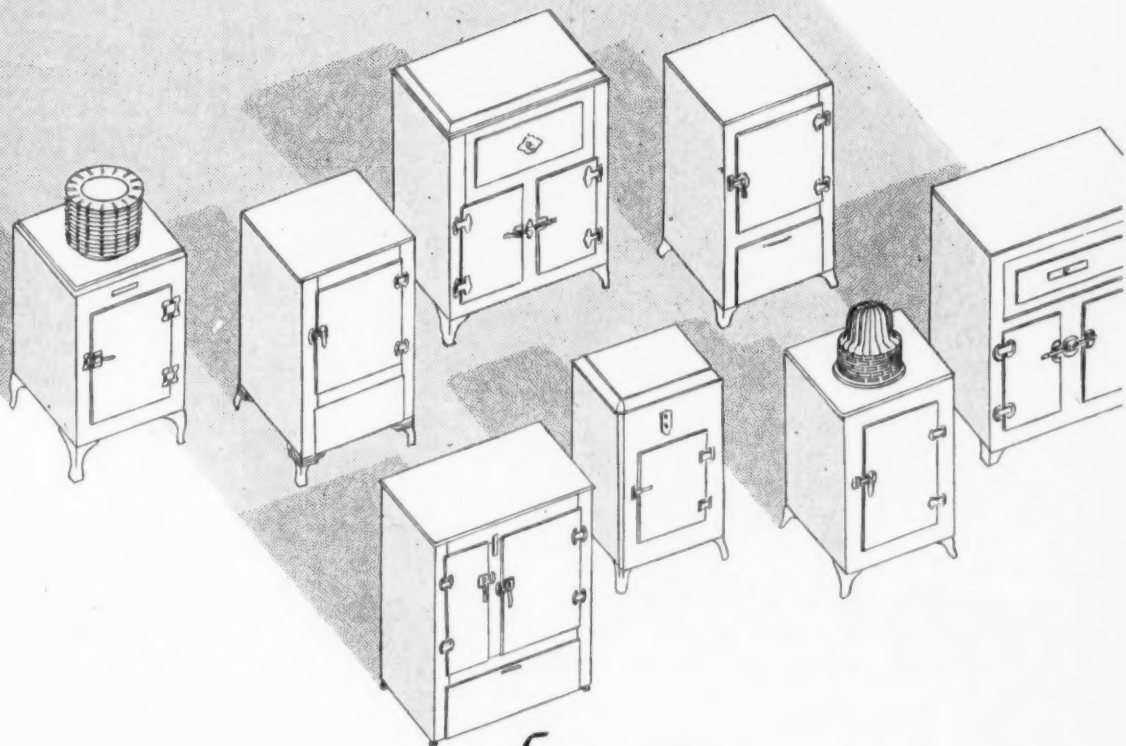
Mr. Solensten is known for his work in the creation of educational display material designed to stimulate interest and cooperation of employees in accident prevention, waste elimination, and maintenance of quality and quantity in production. Before joining the executive staff of the Elliott Service Co., in 1926, he was director of the poster division of the National Safety Council.

Mr. Emerson will have charge of production and distribution of Elliott industrial services, bulletin board displays, suggestion systems, and other management helps, including the publication of the series of booklets on "Management"—An Information Service for Foremen, Department Heads and Supervisors."

KEROTEST

multiple diaphragm

REFRIGERATION VALVES



... for any
electric refrigeration service

Leading refrigerator engineers find in the Kerotest Multiple Monel Metal Diaphragm Refrigeration Valves the ultimate in safety, durability and dependability under all conditions of service.

Listed as standard by the Underwriters Laboratories . . . pressure tested to 11,250 pounds in Underwriters Laboratories in full open, half open and full closed positions—as well as meeting a durability test of 50,000 cycles open and closed—here is a valve that will meet your most rigid specifications.

The Multiple Monel Metal Diaphragm is impervious to all refrigerants and is replaceable with the valve under pressure. A strong bronze stem of generous proportions . . . full size valve openings . . . "pressure tested" metal to metal back seats and a cadmium-plated, heavy steel mounting flange with convenient screw holes for attachment in shallow knockout boxes, are a few salient features.

Ask your nearest distributor to quote you on your requirements.

KEROTEST MANUFACTURING COMPANY

PITTSBURGH, PA.

Distributed by

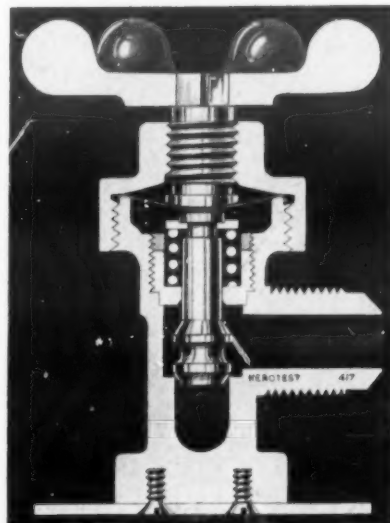
Boston, Massachusetts . . . 110 High Street
A. E. Borden Co.
Newark, N. J., Jefferson and Chestnut Sts.
McIntire Connector Co.
New York City . . . 58 Warren Street
Paramount Electrical Supply Co., Inc.
New York City . . . 245 Fifth Avenue
W. H. Schrank Co.
Philadelphia, Pennsylvania, 523 Arch Street
Fretz Brass & Copper Co.
Greensboro . . . North Carolina
Home Appliance Service Co.
Cincinnati, Ohio . . . Burbank Street
The Merkel Bros. Co.

Distributed by

Detroit, Mich., 6-247 General Motors Bldg.
W. H. Mark Hanna
Chicago, Illinois, 2317 W. Marquette Road
G. C. Taylor
St. Louis, Missouri, 2817 Laclede Avenue
Brass & Copper Sales Co.
Los Angeles, California, 224 East 11th Street
Van D. Clothier
San Francisco, Calif., Merchants Exchange Bldg.
A. W. V. Johnson

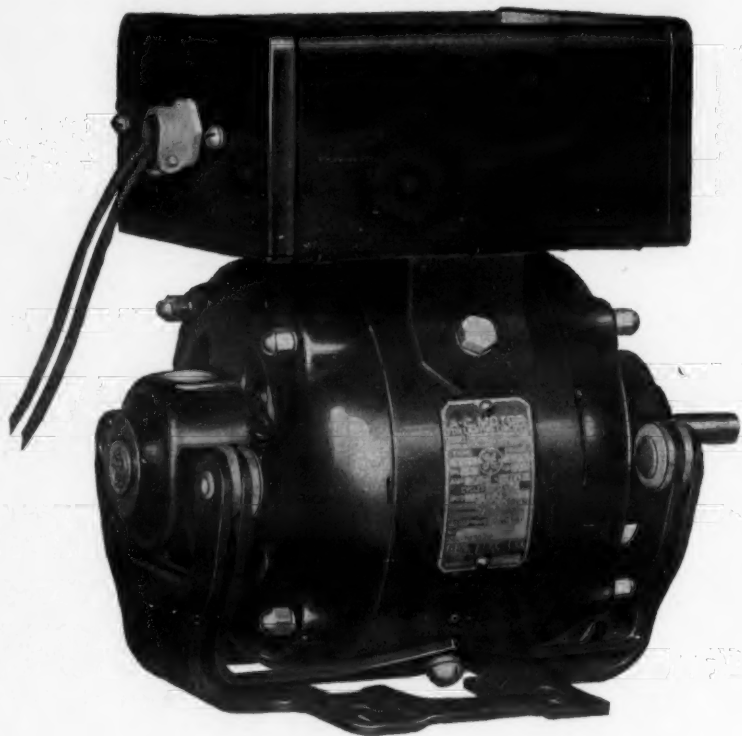
EXPORT DISTRIBUTORS

New York City, New York, 116 Broad Street
Melchior Armstrong, Dessau Co., Inc.



Kerotest Multiple Diaphragm Valves are available in 1, 2 and 3 way types to meet any installation requirement.

An achievement of interest to manufacturers and users of electric refrigerators



G-E CAPACITOR-MOTOR TYPE KC

SIMPLE in construction, the G-E capacitor-motor has no commutator, no collector or brushes. Because of this simple, squirrel-cage construction, its operation is extremely quiet. It is the outstanding motor drive for the home electric refrigerator.

In addition to this complete capacitor-motor power unit, General Electric also has available a complete line of fractional-horsepower motor parts for general use in direct-connected refrigerators in which the motor parts may be subjected to the action of the refrigerant. These motor parts, consisting of stator and rotor, are available in horsepower ratings of 1/10, 1/8, 1/6, 1/4, 1/3, 1/2, and 3/4 hp. They are intended for mounting directly in the compressor unit.

Back of the Type KC capacitor-motor — back of these motor parts — are all of the facilities of General Electric. These products are the result of nearly thirty years of successful fractional-horsepower motor design, manufacture, and application — proved, dependable. Why not ask your nearest G-E office to give you complete information?

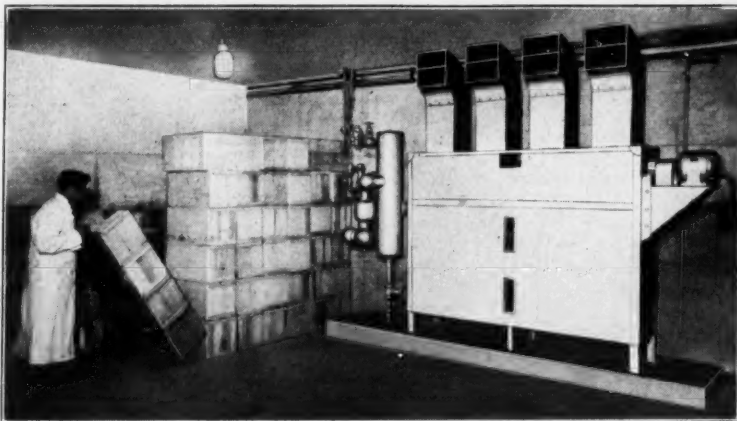
OUTSTANDING FEATURES

1. Simple construction, having no commutators or brushes
2. High starting and pull-up torque
3. Unusually quiet operation
4. High efficiency, resulting in lower operating costs
5. Reliable operation for long periods

GENERAL  ELECTRIC

210-142

Storing Butter the Modern Way



Brunswick-Kroeschell Cold Diffusers maintain temperatures in butter storage. A model C-152 ammonia compressor is used with each diffuser.

Borden Uses Mechanically Refrigerated Trucks

LOS ANGELES—Ice cream is now being delivered by the Borden Co., here, in mechanically refrigerated motor trucks designed and built by Motor Vehicle Refrigeration, Ltd., of this city. The construction of these trucks was described in the August 26 issue of the *Engineering Section*.

"The Borden trucks travel about 35 miles a day, and make about 50 stops," Joseph Pierotti, head of the Motor Vehicle Refrigeration, Ltd., states. "The driver returns in the afternoon around 2 o'clock with the temperature of the unit reading 4° below zero and reloads his truck with ice cream from 175 gallons to the full capacity of 325 gallons."

"By the time he is loaded, the doors being kept open, the temperature jumps

up to about 4° F. He then closes and locks the doors, and while he is checking the ice cream and changing his clothes, the motor is left running, taking from 20 to 30 minutes and the temperature again falls below zero.

"The motor is turned off and the unit is not touched until the following morning at 6 o'clock. The temperature is then about 2° F. losing 4° in a period of 16 hours," he claims.

"The driver turns on his motor and is off on his route, and by the time he is at his first stop which is about three-quarters of a mile, the thermometer shows about 4° below zero. During the whole day the temperature while opening and closing the doors, seldom exceeds 2° F.," Mr. Pierotti maintains.

INSTALLS KELVINATOR ON DELIVERY TRUCK

HOLYOKE, Mass.—By installing Kelvinator refrigeration in a truck body, A. LaCroix, who operates a retail meat cart in Willimansett and Fairview, has found a way to increase his sales and profits.

Formerly he had to return several times a day to renew his stock of ice, but now he runs continuously until late at night, keeping his stocks at a uniform temperature of 36° F., and offering a wider variety to his trade.

An engineer of the Kelvinator-Raff Corp. of Springfield designed the cold box, with heavy plate-glass door in the rear and a case 37 in. square and 4 ft. high, with movable shelves.

It is insulated with cork 8 in. thick at the top, 5 in. at the bottom and 3 in. on the side, with an inch of air space all around.

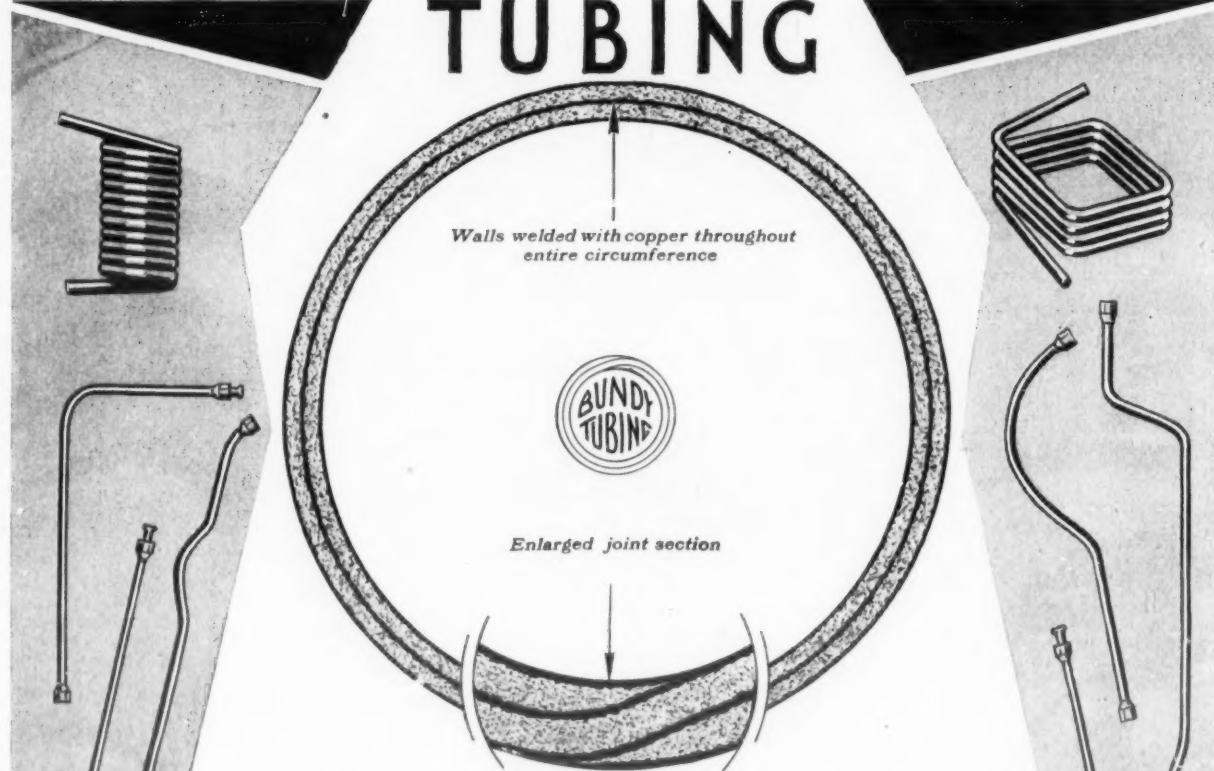
The cooling plant is next to the driver's seat, and includes a 32-volt battery, 1/4 hp. motor and XO-40 unit with dry fin coil, the last-named being in the front top of the meat box.

A plug in the side of the car enables connection to be made with an electric outlet in the garage for charging the battery each night. It cost about \$800 to convert the car to this modern plan, but the owner feels confident this will be absorbed in a few months by increased sales.

STEWART COMPRESSORS ALL MADE IN LOS ANGELES

LOS ANGELES—Manufacturing operations of the Stewart Machine Co. have been centralized at 1046 East 22nd St., here, with the establishing of ammonia compressor manufacture. Methyl chloride and sulphur dioxide condensing units are also made in this plant.

BUNDYWELD TUBING



THIS industry has well defined and rigid requirements in the type of tubing that will satisfactorily meet its demands.

Cooling qualities, vibration resistance, ease of fabrication, strength, uniform wall thickness, all are factors that must be fully met.

And taking each of these in order, Bundyweld double-walled, copper-coated steel tubing fills every one of these specifications—exactly.

Furnished completely fabricated, with fittings attached, ready for installation, or in lengths or coils for your own fabrication. Bundyweld Tubing comes in sizes 1/8" to 5/8" O. D.

BUNDY TUBING COMPANY, 4815 Bellevue Avenue, DETROIT, MICHIGAN

AIR CONDITIONING FOR FEDERAL BUILDINGS

WASHINGTON, D. C.—This city is becoming a leader in air conditioning of office buildings, judging from the decision of government officials in charge of building construction, to equip the new federal office buildings, now under construction or planned, with such air conditioning systems.

Officials of the Treasury Department, who have charge of the designing of the new government buildings, have estimated that it will cost about \$300,000 to install the air conditioning systems for each \$10,000,000 spent in construction.

Two buildings, already constructed, will not be equipped with the systems because no provision was made for it in the plans. These are the Internal Revenue building, now occupied, and the major portion of the mammoth new, Department of Commerce building. One wing of the Department of Commerce building, which includes the secretary's office, will be equipped, the plans having been changed while the building was under construction.

Altogether, the government expects to equip six new buildings with air conditioning systems. This intention, of course, is dependent upon the appropriation by Congress of the necessary money. It is not believed, however, that there will be any great objection to the appropriations.

Among the buildings scheduled to be equipped with air conditioning apparatus are the Department of Justice, which will cost approximately \$12,000,000; Post Office Department, \$10,000,000; Archives building, \$7,000,000; Labor Department, \$4,200,000; Interstate Commerce Commission, \$4,200,000, and a building to house various independent bureaus and commission, \$2,000,000.

The question of cooling the new federal buildings arose after the terrific heat of the summer of 1930, and was again brought up this summer, when it was necessary for some government bureaus to dismiss their employees early in the afternoon. This was particularly true of employees in the temporary "paper" buildings constructed during the World War.

Because of the nature of the documents to be housed and preserved there, officials believe an air conditioning plant is a vital necessity in the new Archives building. The installations in the other buildings, however, will be for the benefit of employees.

Following the lead of the federal government, the commissioners of the District of Columbia have instructed Municipal Architect A. L. Harris to consider the feasibility of installing air conditioning systems in the four buildings which will constitute the new municipal center for the District of Columbia.

KANSAS HOTEL BUYS LIPMAN UNIT FOR AIR CONDITIONING

ABILENE, Kan.—A complete refrigeration and air conditioning plant has been installed here in the Sunflower hotel by the General Refrigeration Co. of Kansas City.

Lipman equipment was used, at a cost of \$25,000.

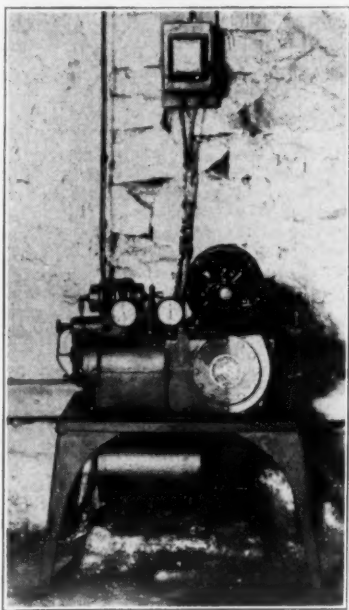
The entire building, consisting of 100 guest rooms, coffee shop, the dining room and the kitchen, was air conditioned, and a circulating water cooling system installed.

A Lipman model 2010 condensing unit, installed in the basement, supplies the refrigerant.

The plant will automatically maintain normal temperatures in every room throughout the year, besides maintaining the proper amount of humidity.

The system is designed to operate with all doors and windows closed. It automatically cuts itself off in any room when a window is raised or when a guest leaves a room and locks the door.

An Early One



Nine years ago this Mayflower multiple system was installed in Springfield, Ohio; it still works. Who knows of an earlier one?

AQUARIUM REFRIGERATED FOR ARCTIC OCEAN FISH

SAN FRANCISCO—To make fish from the Arctic ocean feel at home in the Steinhardt aquarium in the Golden Gate Park, here, salt water in the exhibition tanks is cooled by electric refrigeration to 50° F.

Operation of the system is carried out on the following cycle: water from the 20,000-gallon supply tank flows by gravity to a distributing main above the cold water fish exhibition glass tanks, to which it is distributed by adjustable nozzles feeding the water through glass tubes. At the same time it draws in air, on the injector principle, to aerate the water.

From the fish exhibition tanks, the cold water overflows to a collecting main, thence to a sand filter and collects in a sump tank under the filter. From here it is pumped by a centrifugal pump back to the roof cooling tank.

The pump is controlled automatically by a float switch in the roof tank, the float being set to operate on a difference of water level of about 1 ft. All of the distributing pipes for the cold water are insulated with cork covering, and the fish tanks, filter and sump tanks (for handling the cooled water) are insulated with 2-in. sheet cork laid in hot asphalt.

Normal control of the electric refrigeration plant is effected by means of a submerged type of thermostat, the control element of which projects into the water of the refrigerated tank on the roof. The thermostat is adjustable to regulate the temperature within a range of one to two degrees.

REFRIGERATION RUBBER WARE

Door and Frame Insulating Strips. Gliders for Refrigerator Legs. Top Hole Sections, Lid Collars, Sleeves, Brine Hole stoppers for Ice Cream Cabinets, etc. Specializing in Parts Made to Customer's Design.

THE AETNA RUBBER CO.
ASHTABULA, OHIO

6,000 COPIES PLANNED FOR A. S. R. E. DATA BOOK

NEW YORK CITY—A first edition of 6,000 copies is being planned by the American Society of Refrigerating Engineers for the "Refrigerating Data Book and Catalog" which the society will publish in the spring of next year. The page size of the new book is to be 6¼x9¼ in., according to the announcement.

The program includes the unification of statistical and technical literature in the field of refrigeration, the preparation of an "encyclopedia" of modern refrigeration by 40 well-known refrigeration engineers, and presentation of a catalog section in the second half of the book where advertisers may describe their products.

The text section of about 400 pages will give attention to the basic principles of refrigeration, machinery, equipment—a collection of treatises on all applications of refrigeration, especially the newer ones, in commercial and industrial uses.

This includes food freezing, air conditioning, building equipment, food processing, ice cream, ice, cold storage, mobile refrigeration, trucks, show cases, liquid cooling, chemical plant applications and solid carbon dioxide.

Frick Compressors Supply Refrigeration in Aetna Life Insurance Building

HARTFORD, Conn.—Two 6x6 Frick compressors, each V-belt driven by a 20 hp. motor, supply refrigeration for cooling and freezing equipment in the new building of the Aetna Life Insurance Co., here. There are three cafeterias to accommodate the 3,000 or more who are employed daily; white tile kitchens, a large bake-shop, complete chilled drinking water system, and many other features in this immense structure.

The Frick equipment was installed by the Automatic Refrigerating Co., here, of which A. C. Culver is chief engineer.

The compressor motors are each controlled from a back pressure regulator; normally, only one machine is in operation at a time, according to Mr. Culver. The compressors have cork foundations to eliminate vibration, with the motor control panel at each side. The condensers consist of two stands of double pipe, 12 pipes high, with a 20-in. by 10-ft. receiver underneath.

The two water tanks are 3 ft. in diameter by 7 ft. high, and each contains 240 ft. of 1¼-in. coils for cooling the drinking water. The coils are in series and are controlled by a thermo-

static expansion valve and a solenoid valve to open and shut off the ammonia circuit by a thermostat placed in the water circulating piping.

The two centrifugal pumps, which circulate the water to 88 bubblers and 12 faucets throughout the building, are of 60 g.p.m. capacity each, although but one pump operates at a time.

The only other item on the expansion circuit, in addition to the drinking water tanks, is a 9-ft. shell and tube brine cooler 26 in. in diameter. The ammonia flow to this brine cooler is controlled by a thermostatic expansion valve, and by a solenoid valve actuated by a thermostat in the brine circulating line.

Two pumps, each 60 g.p.m., circulate the brine from the brine cooler to the various refrigerated boxes. These boxes, eight of the walk-in type, and three of the multi-compartment variety, are used in connection with the large kitchen serving the cafeteria and restaurant.

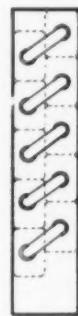
The walk-in boxes all have wall coils of 1¼-in. galvanized pipe in two circuits with control valves for defrosting. There is also a cooling sink attached to the brine system, and an ice cream freezer.

BUSH CONDENSERS



Any number
of tubes high or deep
and as wide as
you wish

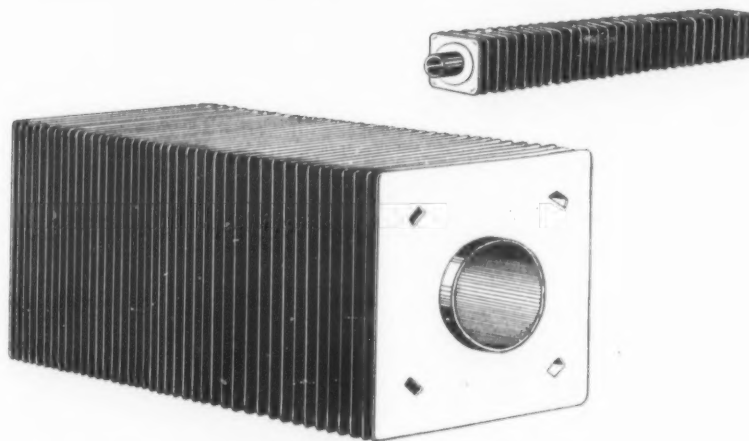
Blue prints mailed on request



STANDARD SIZES OR TO YOUR OWN SPECIFICATIONS

Single Pass—Double Pass—Staggered or Header Type Construction—
Individual Fins 7/8 in. square or 1 in. x 1½ in. — Tubing ¼ in., 3/8 in.
or 7/16 in. Seamless Copper

FINNED TUBING



Fin sizes from 7/8 in. square to 4 1/16 in. square with a range of surface area between 108 and 2070 square inches per lineal foot

STRAIGHT LENGTHS OR FABRICATED TO ORDER

ALUMINUM - BRASS - COPPER OR STEEL

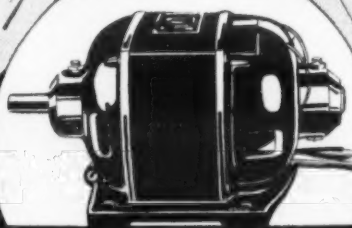
THE BUSH MANUFACTURING CO.
HARTFORD CONN.

W. H. MARK HANNA
6-247 GENERAL MOTORS BLDG., DETROIT, MICH.

VAN D. CLOTHIER
224 E. 11 STREET, LOS ANGELES, CALIF.

REFRIGERATION APPLIANCES
4845 W. GRAND AVE., CHICAGO, ILL.

Quiet and Dependable



The special cradle mounting that identifies Leland motors built for refrigeration is part of the explanation of their quietness. The fact that they are built to closer tolerances and more rigid inspection than is usually observed in motor manufacturing, also helps to explain this essential characteristic—quietness in operation.

Successfully used in refrigeration—worth investigating.
The Leland Electric Co., Dayton, Ohio, U.S.A.,
Canadian Address
Toronto

Leland Motors

An achievement of interest to manufacturers and users of electric refrigerators



G-E CAPACITOR-MOTOR TYPE KC

SIMPLE in construction, the G-E capacitor-motor has no commutator, no collector or brushes. Because of this simple, squirrel-cage construction, its operation is extremely quiet. It is the outstanding motor drive for the home electric refrigerator.

In addition to this complete capacitor-motor power unit, General Electric also has available a complete line of fractional-horsepower motor parts for general use in direct-connected refrigerators in which the motor parts may be subjected to the action of the refrigerant. These motor parts, consisting of stator and rotor, are available in horsepower ratings of 1/10, 1/8, 1/6, 1/4, 1/3, 1/2, and 3/4 hp. They are intended for mounting directly in the compressor unit.

Back of the Type KC capacitor-motor — back of these motor parts — are all of the facilities of General Electric. These products are the result of nearly thirty years of successful fractional-horsepower motor design, manufacture, and application — proved, dependable. Why not ask your nearest G-E office to give you complete information?

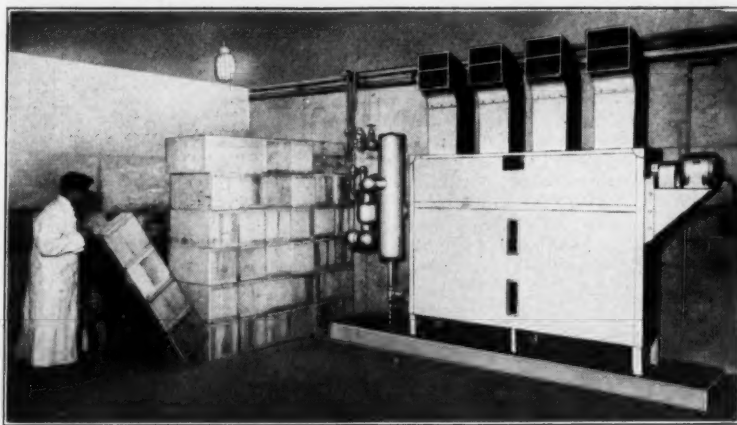
OUTSTANDING FEATURES

1. Simple construction, having no commutators or brushes
2. High starting and pull-up torque
3. Unusually quiet operation
4. High efficiency, resulting in lower operating costs
5. Reliable operation for long periods

GENERAL  ELECTRIC

210-142

Storing Butter the Modern Way



Brunswick-Kroeschell Cold Diffusers maintain temperatures in butter storage. A model C-152 ammonia compressor is used with each diffuser.

Borden Uses Mechanically Refrigerated Trucks

LOS ANGELES—Ice cream is now being delivered by the Borden Co., here, in mechanically refrigerated motor trucks designed and built by Motor Vehicle Refrigeration, Ltd., of this city. The construction of these trucks was described in the August 26 issue of the *Engineering Section*.

"The Borden trucks travel about 35 miles a day, and make about 50 stops," Joseph Pierotti, head of the Motor Vehicle Refrigeration, Ltd., states. "The driver returns in the afternoon around 2 o'clock with the temperature of the unit reading 4° below zero and reloads his truck with ice cream from 175 gallons to the full capacity of 325 gallons."

"By the time he is loaded, the doors being kept open, the temperature jumps

up to about 4° F. He then closes and locks the doors, and while he is checking the ice cream and changing his clothes, the motor is left running, taking from 20 to 30 minutes and the temperature again falls below zero.

"The motor is turned off and the unit is not touched until the following morning at 6 o'clock. The temperature is then about 2° F. losing 4° in a period of 16 hours," he claims.

"The driver turns on his motor and is off on his route, and by the time he is at his first stop which is about three-quarters of a mile, the thermometer shows about 4° below zero. During the whole day the temperature while opening and closing the doors, seldom exceeds 2° F.," Mr. Pierotti maintains.

INSTALLS KELVINATOR ON DELIVERY TRUCK

HOLYOKE, Mass.—By installing Kelvinator refrigeration in a truck body, A. LaCroix, who operates a retail meat cart in Willimansett and Fairview, has found a way to increase his sales and profits.

Formerly he had to return several times a day to renew his stock of ice, but now he runs continuously until late at night, keeping his stocks at a uniform temperature of 36° F., and offering a wider variety to his trade.

An engineer of the Kelvinator-Raff Corp. of Springfield designed the cold box, with heavy plate-glass door in the rear and a case 37 in. square and 4 ft. high, with movable shelves.

It is insulated with cork 8 in. thick at the top, 5 in. at the bottom and 3 in. on the side, with an inch of air space all around.

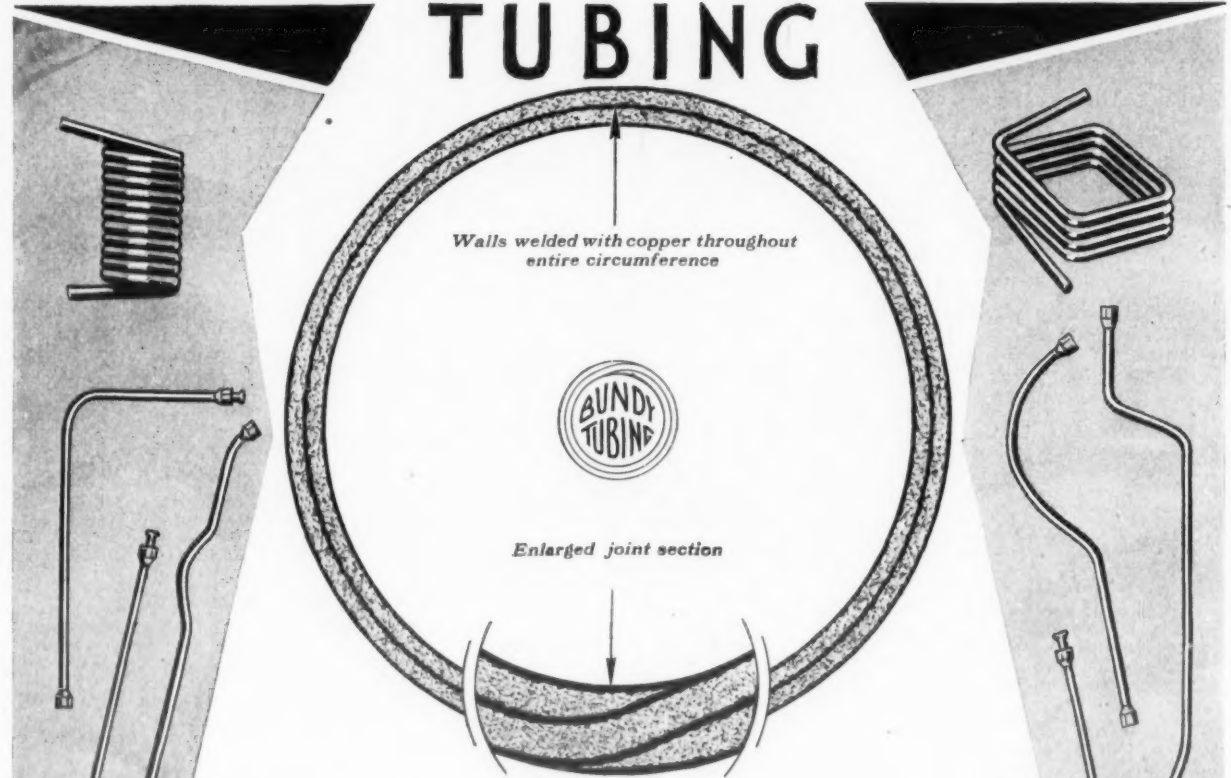
The cooling plant is next to the driver's seat, and includes a 32-volt battery, 1/4 hp. motor and XO-40 unit with dry fin coil, the last-named being in the front top of the meat box.

A plug in the side of the car enables connection to be made with an electric outlet in the garage for charging the battery each night. It cost about \$800 to convert the car to this modern plan, but the owner feels confident this will be absorbed in a few months by increased sales.

STEWART COMPRESSORS ALL MADE IN LOS ANGELES

LOS ANGELES—Manufacturing operations of the Stewart Machine Co. have been centralized at 1046 East 22nd St., here, with the establishing of ammonia compressor manufacture. Methyl chloride and sulphur dioxide condensing units are also made in this plant.

BUNDYWELD TUBING



THIS industry has well defined and rigid requirements in the type of tubing that will satisfactorily meet its demands.

Cooling qualities, vibration resistance, ease of fabrication, strength, uniform wall thickness, all are factors that must be fully met.

And taking each of these in order, Bundyweld double-walled, copper-coated steel tubing fills every one of these specifications—exactly.

Furnished completely fabricated, with fittings attached, ready for installation, or in lengths or coils for your own fabrication. Bundyweld Tubing comes in sizes 1/8" to 5/8" O. D.

BUNDY TUBING COMPANY, 4815 Bellevue Avenue, DETROIT, MICHIGAN

AIR CONDITIONING FOR FEDERAL BUILDINGS

WASHINGTON, D. C.—This city is becoming a leader in air conditioning of office buildings, judging from the decision of government officials in charge of building construction, to equip the new federal office buildings, now under construction or planned, with such air conditioning systems.

Officials of the Treasury Department, who have charge of the designing of the new government buildings, have estimated that it will cost about \$300,000 to install the air conditioning systems for each \$10,000,000 spent in construction.

Two buildings, already constructed, will not be equipped with the systems because no provision was made for it in the plans. These are the Internal Revenue building, now occupied, and the major portion of the mammoth new, Department of Commerce building. One wing of the Department of Commerce building, which includes the secretary's office, will be equipped, the plans having been changed while the building was under construction.

Altogether, the government expects to equip six new buildings with air conditioning systems. This intention, of course, is dependent upon the appropriation by Congress of the necessary money. It is not believed, however, that there will be any great objection to the appropriations.

Among the buildings scheduled to be equipped with air conditioning apparatus are the Department of Justice, which will cost approximately \$12,000,000; Post Office Department, \$10,000,000; Archives building, \$7,000,000; Labor Department, \$4,200,000; Interstate Commerce Commission, \$4,200,000, and a building to house various independent bureaus and commission, \$2,000,000.

The question of cooling the new federal buildings arose after the terrific heat of the summer of 1930, and was again brought up this summer, when it was necessary for some government bureaus to dismiss their employees early in the afternoon. This was particularly true of employees in the temporary "paper" buildings constructed during the World War.

Because of the nature of the documents to be housed and preserved there, officials believe an air conditioning plant is a vital necessity in the new Archives building. The installations in the other buildings, however, will be for the benefit of employees.

Following the lead of the federal government, the commissioners of the District of Columbia have instructed Municipal Architect A. L. Harris to consider the feasibility of installing air conditioning systems in the four buildings which will constitute the new municipal center for the District of Columbia.

KANSAS HOTEL BUYS LIPMAN UNIT FOR AIR CONDITIONING

ABILENE, Kan.—A complete refrigeration and air conditioning plant has been installed here in the Sunflower hotel by the General Refrigeration Co. of Kansas City.

Lipman equipment was used, at a cost of \$25,000.

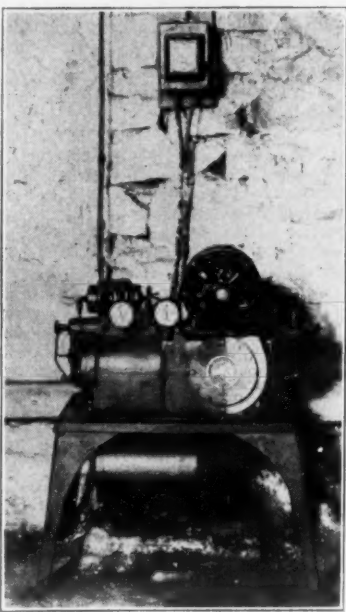
The entire building, consisting of 100 guest rooms, coffee shop, the dining room and the kitchen, was air conditioned, and a circulating water cooling system installed.

A Lipman model 2010 condensing unit, installed in the basement, supplies the refrigerant.

The plant will automatically maintain normal temperatures in every room throughout the year, besides maintaining the proper amount of humidity.

The system is designed to operate with all doors and windows closed. It automatically cuts itself off in any room when a window is raised or when a guest leaves a room and locks the door.

An Early One



Nine years ago this Mayflower multiple system was installed in Springfield, Ohio; it still works. Who knows of an earlier one?

AQUARIUM REFRIGERATED FOR ARCTIC OCEAN FISH

SAN FRANCISCO—To make fish from the Arctic ocean feel at home in the Steinhart aquarium in the Golden Gate Park, here, salt water in the exhibition tanks is cooled by electric refrigeration to 50° F.

Operation of the system is carried out on the following cycle: water from the 20,000-gallon supply tank flows by gravity to a distributing main above the cold water fish exhibition glass tanks, to which it is distributed by adjustable nozzles feeding the water through glass tubes. At the same time it draws in air, on the injector principle, to aerate the water.

From the fish exhibition tanks, the cold water overflows to a collecting main, thence to a sand filter and collects in a sump tank under the filter. From here it is pumped by a centrifugal pump back to the roof cooling tank.

The pump is controlled automatically by a float switch in the roof tank, the float being set to operate on a difference of water level of about 1 ft. All of the distributing pipes for the cold water are insulated with cork covering, and the fish tanks, filter and sump tanks (for handling the cooled water) are insulated with 2-in. sheet cork laid in hot asphalt.

Normal control of the electric refrigeration plant is effected by means of a submerged type of thermostat, the control element of which projects into the water of the refrigerated tank on the roof. The thermostat is adjustable to regulate the temperature within a range of one to two degrees.

REFRIGERATION RUBBER WARE

Door and Frame Insulating Strips. Gliders for Refrigerator Legs. Top Hole Sections, Lid Collars, Sleeves, Brine Hole stoppers for Ice Cream Cabinets, etc. Specializing in Parts Made to Customer's Design.

THE AETNA RUBBER CO.
ASHTABULA, OHIO

6,000 COPIES PLANNED FOR A. S. R. E. DATA BOOK

NEW YORK CITY—A first edition of 6,000 copies is being planned by the American Society of Refrigerating Engineers for the "Refrigerating Data Book and Catalog" which the society will publish in the spring of next year. The page size of the new book is to be 6 1/4 x 9 1/4 in., according to the announcement.

The program includes the unification of statistical and technical literature in the field of refrigeration, the preparation of an "encyclopedia" of modern refrigeration by 40 well-known refrigeration engineers, and presentation of a catalog section in the second half of the book where advertisers may describe their products.

The text section of about 400 pages will give attention to the basic principles of refrigeration, machinery, equipment—a collection of treatises on all applications of refrigeration, especially the newer ones, in commercial and industrial uses.

This includes food freezing, air conditioning, building equipment, food processing, ice cream, ice, cold storage, mobile refrigeration, trucks, show cases, liquid cooling, chemical plant applications and solid carbon dioxide.

Frick Compressors Supply Refrigeration in Aetna Life Insurance Building

HARTFORD, Conn.—Two 6x6 Frick compressors, each V-belt driven by a 20 hp. motor, supply refrigeration for cooling and freezing equipment in the new building of the Aetna Life Insurance Co., here. There are three cafeterias to accommodate the 3,000 or more who are employed daily; white tile kitchens, a large bake-shop, complete chilled drinking water system, and many other features in this immense structure.

The Frick equipment was installed by the Automatic Refrigerating Co., here, of which A. C. Culver is chief engineer.

The compressor motors are each controlled from a back pressure regulator; normally, only one machine is in operation at a time, according to Mr. Culver. The compressors have cork foundations to eliminate vibration, with the motor control panel at each side. The condensers consist of two stands of double pipe, 12 pipes high, with a 20-in. by 10-ft. receiver underneath.

The two water tanks are 3 ft. in diameter by 7 ft. high, and each contains 240 ft. of 1 1/4-in. coils for cooling the drinking water. The coils are in series and are controlled by a thermo-

static expansion valve and a solenoid valve to open and shut off the ammonia circuit by a thermostat placed in the water circulating piping.

The two centrifugal pumps, which circulate the water to 88 bubblers and 12 faucets throughout the building, are of 60 g.p.m. capacity each, although but one pump operates at a time.

The only other item on the expansion circuit, in addition to the drinking water tanks, is a 9-ft. shell and tube brine cooler 26 in. in diameter. The ammonia flow to this brine cooler is controlled by a thermostatic expansion valve, and by a solenoid valve actuated by a thermostat in the brine circulating line.

Two pumps, each 60 g.p.m., circulate the brine from the brine cooler to the various refrigerated boxes. These boxes, eight of the walk-in type, and three of the multi-compartment variety, are used in connection with the large kitchen serving the cafeteria and restaurant.

The walk-in boxes all have wall coils of 1 1/4-in. galvanized pipe in two circuits with control valves for defrosting. There is also a cooling sink attached to the brine system, and an ice cream freezer.

BUSH CONDENSERS



Any number
of tubes high or deep
and as wide as
you wish

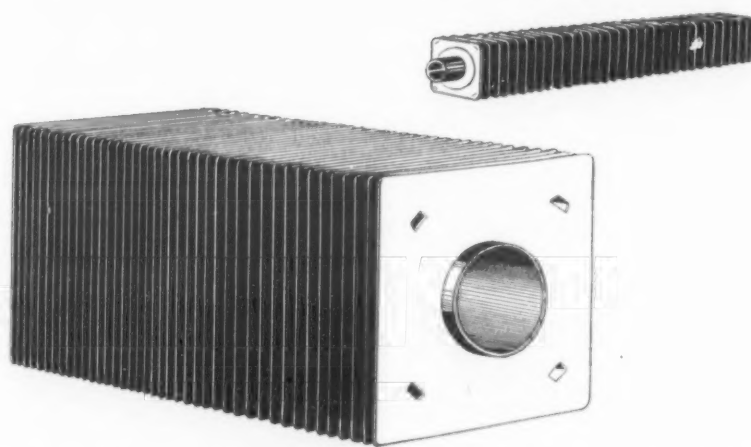
Blue prints mailed on request



STANDARD SIZES OR TO YOUR OWN SPECIFICATIONS

Single Pass—Double Pass—Staggered or Header Type Construction—
Individual Fins 7/8 in. square or 1 in. x 1 1/2 in. — Tubing 1/4 in., 3/8 in.
or 7/16 in. Seamless Copper

FINNED TUBING



Fin sizes from 7/8 in. square to 4 1/8 in. square with a range of surface area between 108 and 2070 square inches per lineal foot
STRAIGHT LENGTHS OR FABRICATED TO ORDER

ALUMINUM - BRASS - COPPER OR STEEL

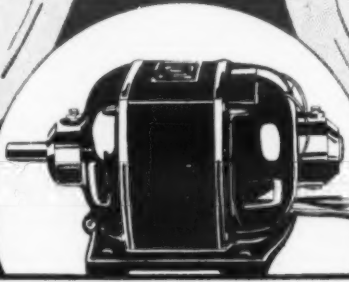
THE BUSH MANUFACTURING CO.
HARTFORD CONN.

W. H. MARK HANNA
6-247 GENERAL MOTORS BLDG., DETROIT, MICH.

VAN D. CLOTHIER
224 E. 11 STREET, LOS ANGELES, CALIF.

REFRIGERATION APPLIANCES
4845 W. GRAND AVE., CHICAGO, ILL.

Quiet and Dependable



The special cradle mounting that identifies Leland motors built for refrigeration is part of the explanation of their quietness. The fact that they are built to closer tolerances and more rigid inspection than is usually observed in motor manufacturing, also helps to explain this essential characteristic—quietness in operation.

Successfully used in refrigeration—worth investigating.
The Leland Electric Co., Dayton, Ohio, U.S.A.,
Canadian Address
Toronto

Leland Motors

ENGINEERING SECTION ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

Published Every Week by

BUSINESS NEWS PUBLISHING CO.

550 Macabees Building, Woodward Ave. and Putnam St.
Detroit, Michigan. Telephones: Columbia 4242-4243-4244

Subscription Rates:

U. S. and Possessions and countries in Pan-American
Postal Union: \$2.00 per year; 3 years for \$5.00
Canada: \$5.00 per year

All Other Countries: \$2.25 per year; two years for \$4.00
Advertising Rates on Request

F. M. COCKRELL, Publisher

GEORGE F. TAUBENECK, Editor

JOHN T. SCHAEFER, Engineering Editor

JOHN R. ADAMS, Assistant Editor

PHIL B. REDEKER, Assistant Editor

FREDERICK W. BRACK, Advertising Manager

GEORGE N. CONGDON, Business Manager

Member, Audit Bureau of Circulations

Copyright 1931 by Business News Publishing Co.

VOL. 6, No. 1, SERIAL No. 129, Part 2, Sept. 9, 1931

New Products

THE many new parts, materials, and accessories for electric refrigeration show that considerable thinking is being done by the numerous manufacturers who would like to supply more products to the industry which has gone at high speed during the general business depression.

Industrial doldrums and off-season slumps in other industries have occasioned factory managers to seek new products to make, and electric refrigeration has promised a profitable market.

Surveys made by these interests have indicated, in many instances, that the manufacture of supplies is a more profitable and satisfactory activity for them than to attempt the building of complete refrigeration systems.

By maintaining several substantial accounts, parts suppliers can often utilize the fast, straight-line production methods to which small part manufacture is particularly suited. In addition, parts suppliers sell to organizations that are generally large and financially responsible, and the prime burden of guaranteeing the parts has been assumed by the company which sells the complete refrigerator.

Design Refinements

Veteran suppliers of parts are constantly on the alert to effect improvements that will make refrigerator manufacture simpler, or the operation of machines more trouble-free. Their engineers analyze every defect that appears repeatedly, with a view to eliminating it by improved design. Consequently the majority of new products represents refinements rather than fundamental changes in principles of operation.

There was a time when large manufacturers of parts for the automotive, electrical, and other industries regarded refrigeration as a minor field—with possibilities, of course. They were content to let the refrigeration people take all the initiative in the design work, assisting only in the adaptation of the designs to production methods.

Work Better, Last Longer

Then an electric refrigerator manufacturer could be heard to complain, "We simply can't find a part that will do this job properly." Now he is more apt to exhibit a machine part with the pleased comment, "Look what has been developed for us. This product does the work much better, and has a longer life."

With the growth of electric refrigeration to a major industry, competition for the business of manufacturers has become too keen for any of the suppliers to rest on records of past accounts. Their trained engineers are kept busy improving their products.

New companies are entering the field with designs based on the experience of older suppliers. The results are better parts and materials for the manufacturer, and more dependable refrigerators for the housewife.

Good Tools, Good Work

A GOOD set of tools is a prime requisite of a good work in the servicing of electric refrigerators. One of the important jobs of a service manager is to see to it that his field men are equipped with the right tools, and that they are kept in good condition, for he knows that even though a clever mechanic can accomplish a lot with

make-shift tools, that same man can do much better work if he has the right equipment.

The service chief keeps a constant check on his inventory of tools, replacing those that are worn, and watching out for new devices that will make the service operations easier and better done.

A considerable number of service adjustments are made right on the customer's premises. To facilitate this type of work, a service man is usually provided with a personal kit containing a select group of tools.

Keeping these in proper condition is even more of a problem because individual service men are apt to neglect the replacement of defective or lost tools, and the service manager's attention may not be directed immediately to an incomplete kit. Again, he must maintain a constant check, and keep stressing the fact that lack of proper tools can seriously affect the quality of a service man's work.

On Our Bookshelves

"OFFICIAL REFRIGERATION SERVICE MANUAL"

Author: L. K. Wright. Publisher: Gernsback Publications, Inc., 96 Park Place, New York City. Pages: 352. Price: \$5. Date of publication: 1931.

An impressive looking loose leaf book made its appearance last month with the impressive title of "Official Refrigeration Service Manual." The volume is intended as a guide for the servicing of all types of electric refrigeration, commercial and household, self-contained and apartment house units.

Perhaps the reviewer expected too much from the first work of this kind, but a study of the book was somewhat disappointing. The 352 pages embrace a wealth of information, but too much of it is of the directory type—company names and affiliations, trade names, and a large body of descriptive matter about the products of each company. The numerous illustrations of condensing units are helpful to the service man in identifying a rare type of machine, but they are obviously of little help in getting a refrigerator back in running order.

Much of the material was taken directly from catalogs, and service and installation manuals of the manufacturers, and while manufacturers' information about maintaining equipment is doubtless the most reliable, the practice of lifting illustrations and whole pages from other publications detracts definitely from a sense of originality in a book. Reproducing whole pages from service manuals introduces a confusion to the reader when he must leaf over several pages to determine what machine is being discussed because its name isn't given on each page.

The writer devotes considerable attention to the older machines, many of which have become obsolete. This should be helpful to the independent service man who is often faced with tending an "orphan" machine without adequate information about it.

The fact that the Frigidaire machine gets only 2 pages of treatment, General Electric 1½ pages, Copeland 2 pages, while 12 pages are devoted to Coldak, 10 to Starr Freeze, and 19 to Electro-Kold, leads one to suspect that the author used the service information that was most easily obtained. Majestic is mentioned only in name. The amount of space allotted the various refrigerators does not reflect any particular plan.

The service pages are prefaced by a history of refrigeration, a chapter on the fundamentals of refrigeration, refrigerants, and a discussion of service tools and shop equipment which a service station needs. By far the lion's share of the book is included in chapter VIII—Manufacturers, Makes, and Specifications of Units. A group of technical data and tables which would be useful to the designer or estimator of refrigeration equipment, concludes the volume.

The work is admittedly the most ambitious of its kind ever attempted, since it is the only one, and it is to be hoped that the additional loose leaf sheets promised to all holders will treat newer equipment and provide more concrete suggestions on service methods.

GLEANINGS FROM RECENT PERIODICALS

Applications of the Photo-Electric Cell

SOME industrial applications of the photo-electric cell which have been made within the last two years include apparatus such as an automatic sorting machine which eliminates defective material or sorts it according to color, a smoke detector which operates a fire extinguisher at the first whiff of smoke, a burglar alarm, and a counting device for counting items in mass production.

Sheets of metal are inspected by the electric eye, which automatically rejects spotted or imperfect specimens. In the manufacture of paper, it has heretofore been necessary for a workman to watch for breaks or defects. Now this operation is performed automatically, and without the occasional errors which are unavoidable even with the most conscientious human watcher. A system of traffic control using the photo-electric cell makes it possible for the comparatively infrequent machines on certain cross streets to set the signal for "Go," when they approach, while the stream of traffic on main highways is otherwise uninterrupted by "Stop" signals. Automobiles in vehicular tunnels and elsewhere are counted by use of a photo-electric device. Garage doors are automatically opened when the headlights of a car fall on them. Elevator doors similarly are controlled by the passing shadows of persons entering the car.

Twenty years ago imagination was dazzled with the feats which could be performed by the pressing of a button. Now it is not necessary even to press the button. A revolutionary change in industrial methods is taking place, since accurate automatic action is able to govern processes formerly dependent upon human control.—*Electrical Manufacturing*, August.

Room Cooling Methods Discussed from Standpoint of Air Conditions

By Mark E. Mooney
Manager, Room Cooling Department
Copeland Refrigeration Co., Chicago

THE VARIABLE climate of the United States has led to many devices being developed for the air conditioning of houses, theaters, restaurants, factories and offices.

Before entering into a description of the various methods and systems, it is necessary to understand the meaning of the term which has caused so much trouble, namely, humidity and its relation to temperature and dew point.

Humidity is the water vapor or moisture mixed with the air in the atmosphere. The weight of water vapor a given space will hold, is entirely dependent on the temperature: i. e., the amount of vapor is exactly the same whether air is present or not. The air, therefore, simply affects the humidity by its temperature. Absolute humidity is the weight of a cubic foot of water vapor at a given temperature, and percentage of saturation, and is usually expressed as grains per cu. ft.

Relative humidity is the ratio of the weight of water vapor in a given space to the weight which the same space will hold when fully saturated at the same temperature and is expressed in percentage.

Under normal conditions the external air has a relative humidity varying from 50 per cent to 75 per cent of full saturation, and an absolute humidity depending on external temperature. When the relative humidity is much above or below these limits, ill effects are experienced.

The air we live in is never perfectly dry. We speak of it as being "dry," "very dry," or "damp," but the dryness is at most only comparative. Watery vapor is constantly being distilled into the air from the great water surfaces—the oceans, rivers, and lakes.

Moisture, rather than temperature accounts for those oppressive, debilitating, muggy, and uncomfortable days we so often experience in the summertime.

The air can be compared to an ordinary sponge. We know that a sponge can only hold so much water and that when it becomes saturated and more water is added, it throws it off. The drier the sponge, the more quickly it takes up water. So it is with air. However, air will not always take up the same amount of moisture, its capacity being variable with the temperature. Cold air will not carry as much moisture as warm air.

In the summer, with the thermometer at 70° F., we often notice how excessively hot it seems. Yet in winter in our homes, with the thermometer at the same point, we sit with windows and doors shut tight to keep out the cold air and fairly shudder. The reason for this is the great amount of moisture held by the air in the summer months and the comparative lack of it during the winter months.

With a great amount of moisture in the air in summer, perspiration does not evaporate quickly, that is, the very moist air cannot dry up quickly enough the moisture thrown off the body. This prevents our body throwing off its excess heat and as a consequence, we "feel" the heat.

Dew is the water vapor of the air deposited on the surfaces cooled by radiation. The new point is the temperature at which saturation is obtained for a given weight of water vapor. In other words, the dew point is the temperature where any reduction in temperature would cause condensation of

some of the water vapor in the form of dew particles, as happens out of doors in summer, the result being dew, formed by the cooling currents in the air, cooling the air so it cannot hold moisture in and it must precipitate. In the spring, fall, and winter, the same thing results in frost.

It is impossible to lay down a fixed standard of temperature for comfortable living, without due regard to the moisture. Stationary thermometers in stagnant air will not give accurate results. It is necessary that the thermometers being in a strong current of air, the Sling Psychrometer being the best adapted and the most accurate.

It should be remembered that the amount of moisture which will be absorbed, increases as the temperature rises and decreases as the temperature drops. Therefore, as air is heated its affinity for moisture increases and when it is cooled, it is inclined to give up moisture to objects with which it comes in contact.

There are therefore, two ways or methods for causing air to absorb moisture from the persons or objects in a room.

First—The air in the room may be heated, thus increasing the affinity for moisture. This method of artificial heating is much cheaper than artificial refrigeration but it causes so much discomfort to the people in the room that it is only practical in certain cases which do not concern us.

Second—The air entering the room may be artificially cooled below the temperature of the air in the room, the result being that as the cool temperature of the freshly admitted air rises, it will take up moisture from the human skin creating a "comfortable" summertime condition.

In the latter system the air in the room is cooled and at the same time dehumidified by means of a refrigerating unit cooling the coil surfaces in the "blower" box. The coil surfaces not only cool the air but also condense a portion of the moisture. The circulation of the air is usually accelerated by a fan producing between 250 and 300 cu. ft. of cool air per minute. An adjustable set of diffusing shutters or vanes on the front of the "blower" box makes it possible to distribute the cooler air to every part of the room.

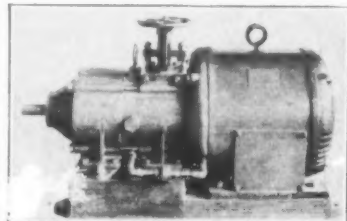
There are also types of air-cooling devices which do not use refrigeration. A typical cooler of this sort is the one which utilizes a large fan to draw the air through an atomizer spray or mist of water. While these are effective, the equipment necessary is a good deal bulkier than that required for electric refrigeration units.

HYDRAULIC TRANSMISSION ANNOUNCED BY JURUICK

PHILADELPHIA—The American Engineering Co. has announced the introduction of a small, compact 5 hp. electro-hydraulic transmission. The transmission will develop full rated torque at any speed, whether it be 1 r.p.m. or 1,000 r.p.m., engineers claim.

Since the torque is constant, the horsepower output varies with the speed of the hydraulic motor. At maximum speed the transmission will develop 5 hp. continuously, it is claimed.

The hydraulic motor, hydraulic pump, and electric motor are all mounted on



American Engineering's New Hydraulic Transmission

a single bed plate reservoir which contains the oil used in the system. The entire transmission, including motor, is 30 in. long, 14 in. wide, and 16 in. high.

The hydraulic pump and motor are of the Hele-Shaw design, and are similar in construction except that the motor has a fixed stroke, while the stroke of the pump may be varied from minimum to maximum.

Pump and motor are multi-cylindrical and handle the fluid in a smooth, continuous stream, manufacturers say.

The electric motor drives the pump shaft at a constant speed. Oil is delivered by the pump to the hydraulic motor at a rate corresponding to the stroke of the pump, regulated by the hand wheel, or any other desirable hand or automatic control.

This is the only point of regulation for there are no controls on the electric or hydraulic motors. Through the handwheel the speed of the hydraulic motor can be varied all the way from zero to maximum in either a forward or reverse direction, it was explained.

NEMA ACCOUNTING MANUAL READY FOR DISTRIBUTION

NEW YORK CITY—The sixth revision of the Uniform Accounting Manual has been revised by the National Electrical Manufacturers' Association, and is now available to both member and non-member companies.

The fifth edition, which carried the title "Standard Accounting and Cost System for the Electrical Manufacturing Industry," has now been in use for five years and during that period very few changes in the fundamental principles were found necessary. It was found, however, that substantial improvement is possible in the presentation of these principles.

S. L. Whitestone, chairman of the committee, in a letter accompanying the manual, says: "It is well at this time to re-affirm the policy which has governed this committee ever since the publication of the first edition, namely, that the system shall conform in every respect to the requirements of a scientific accounting and cost system, but shall be sufficiently flexible to meet the varying requirements of the members of the industry."

"The arrangement of the accounts permits of its ready use by member companies who do not require complete details of operations, as well as by others who do require greater detail which is obtainable by the use of the sub-accounts, and also by those companies who, because of the large volume of their operations, require greater refinements and more complete detail of the accounts."

SERVICE HINTS

By FRANK W. GRAY

THE Baltimore & Ohio Railway recently designed and put into operation a "Car Cooler" which is used to remove the heat from Pullmans which have been standing in the sun. The "Car Cooler" is simply a small automobile truck, the insulated body of which is loaded with blocks of ice. A powerful blower fan draws the warm air across the ice and discharges it through a portable air shaft into the corridor windows of the Pullmans.

Electric refrigeration salesmen might find in this idea a sales outlet for commercial equipment, since it is a certainty that the job could be performed more economically and quickly with a powerful compressor and multiple finned, maximum surface area cooling coils.

In such an installation as this, the compressor would probably be connected in some way to the motor of the truck, or could be driven by a small auxiliary gasoline engine placed in a rear compartment. The heat load could be calculated by figuring the number of cubic feet of air to be cooled, and the maximum temperature differential.

The railways have been slow to adopt electric refrigeration equipment. The Pacific Fruit Express runs thousands of cars in their nation-wide service every year, all of these cars being refrigerated with ice. The question of mechanical refrigeration has been considered from time to time, and experiments are just now under way to determine the adaptability of refrigeration equipment for low-temperature shipping requirements.

Reasons for Hesitancy

There are several reasons why railway companies have hesitated to adopt mechanical refrigeration. 1. The initial cost of equipment would be high. 2. Considerable remodeling of present equipment would be necessary to make workable installations. 3. The necessity for a well-organized service organization to inspect and adjust the machines en route. 4. Most of the railways have at present their own ice production and loading facilities, which would have to be discarded. 5. The results obtained at present seem satisfactory to shippers.

Eventually the railways will probably use mechanical refrigeration, to some extent at least, since frozen food distribution will demand temperatures lower than ice can economically produce. The writer offers a suggestion for a tentative hook-up.

This hook-up contemplates a low-priced installation for the present design of refrigerated car, only normal refrigeration temperatures being required; the plan is to build compressor compartments in each end of the car, using a small portion of the space now used for ice bunkering.

The compressors mounted in these compartments would be belted to drive shafts, which in turn would be belted to the axles of the car. A governor arrangement would be used to control the speed, while a clutch control would prevent the compressors being reversed when the train was backing up, and would permit the machines being driven either way, according to the direction of the car.

Multiple finned coils would be run horizontally along the center of the roof of the car, and would be baffled for air circulation. Ice would be used in the bunkers as normally, the purpose of the auxiliary refrigeration equipment being to reduce ice consumption.

This plan would minimize the service hazard, since the ice would be available to take up the refrigeration load in case of a failure of the refrigeration equipment. This plan would also enable present equipment to be used, with very little remodeling, and should enable the companies to increase their shipping load because of superior refrigeration facilities.

Installation Cheaper

And best of all, such an installation would cost about half as much as an all-electric installation, requiring batteries to drive the motors when the train was not moving, and would be much simpler and less apt to get out of adjustment. The above plan is merely a suggestion, and might furnish a topic for discussion in the "Service Men's Forum."

Air-cooled compressors are sometimes found to be deficient in condensing capacity. In many cases service men have been able to increase the load on a machine 50 per cent by putting on a larger condenser than that furnished by the manufacturer.

In some sections of the country there is a tendency to install air-cooled machines exclusively, rather than to argue with purchasers of equipment over excessive water bills.

It costs money to replace condensers, but by the simple expedient of adding a secondary coil of 1/2-in. finned copper tubing, results equivalent to a larger air-cooled condenser may be obtained. This secondary condenser coil may be made up in various ways, depending largely upon the eye value that the designer wishes to obtain.

But whether the design be circular or made up in horizontal bends, the coil should be bracketed in a position to benefit from the air draft of the

motor fan. Connections should be sweated in so that the flow of refrigerant passes from the original condenser through this secondary coil and then into the receiver of the compressor.

Water-cooled machines are, of course, able to carry heavier refrigeration loads under excessive heat conditions because of their superior condensing capacity.

Where water is expensive, a happy compromise might be reached by using an auxiliary water-cooled condenser on an air-cooled machine, this auxiliary condenser being teed off the compressor head and into the inlet pipe of the receiver, with hand-operated line valves used to change the machine over to water-cooling only during the excessive hot spells when air-cooling is not sufficient.

This arrangement should be practical from an economic point of view, for while it would cost more money to fit up a machine with double condensers in this way, the purchaser would reap the benefit in reduced costs of operation, and should be willing to pay for the additional equipment.

The details as outlined above are not complete, but any service man should be able to visualize the possibilities of such a hook-up, and the mechanical details are simple enough. The owner of the equipment would be obliged to operate these manual valves, but would probably be willing to do so if a saving were demonstrated.

A store by store analysis was recently made of stores in Louisville, Ky., by the Bureau of Foreign & Domestic Commerce, the results tabulated, and specific recommendations made in each case. Mechanical refrigeration equipment was frequently recommended, and

subsequently installed. And in practically every case new vegetable racks were recommended and installed.

Refrigeration salesmen should give more attention to the recommending of commercial equipment for vegetable and fruit display and storage. They should point out to their prospects that even meat coolers (which the average grocer uses to preserve these perishables, if he uses anything at all), are not the place for vegetables and fruits.

Service engineers should prepare themselves to specify equipment for vegetable and fruit display and storage, a temperature of 50° F., plenty of moist air circulation, and woven wire racks or shelves.

BUHRING WATER PURIFIERS

have been sold since 1891. During these 40 years they have been imitated in appearance, but never equalled in quality and performance. **GUARANTEED** to remove taste, color and odor. For Information Write **BUHRING WATER PURIFYING CO.** 40 Murray St., New York City. REPRESENTATIVES: Allen-Buhring Water Purifying Service, Chicago, Ill.; Boston Water Purifier Co., New York; Boston Filter Co., Boston, Mass.



The Purest Sulphur Dioxide

EXTRA DRY

ESOTOO

Trade Mark Reg. U. S. Pat. Off.

Made by our exclusive patented process. Pure. Easy to handle. Does not deteriorate.

Made expressly for refrigeration use. Guaranteed to contain not over 50 parts of moisture per million.

Prompt shipments from our own stocks at West Norfolk, New York, Boston, Atlanta and Jacksonville, or from stocks with agents in Miami, Tampa, New Orleans, Cincinnati, St. Louis, Denver, Los Angeles, San Francisco, Seattle, St. Paul, Chicago, Detroit, Buffalo, and Vancouver, Winnipeg, Toronto, and Montreal, Canada.

Write, wire or cable where we may serve you. Cable Address "Eustis Boston"

VIRGINIA SMELTING COMPANY

WEST NORFOLK, VA.

F. A. Eustis, Secretary

131 State St., Boston and 75 West St., New York

Brass & Copper Belts

Motor Parts and Repairs

Compressor Parts

Complete Cooling Systems, all sizes.

Controls

Send for new catalog, almost everything for large or small organizations

Iceless Refrigeration Accessories Co.

2401 Chestnut Street, Philadelphia, Pa.

A drop of solder

for each joint

POSITIVELY PREVENTS SEEPAGE

Gas cannot seep out of nor can water seep into a connection between Mueller STREAMLINE Copper Tube and Fittings. Expansion will not work it loose. Vibration cannot affect it. Rust cannot corrode it. The solder film—very thin—spread, by the phenomenon of capillary attraction, evenly and quickly over the entire area between pipe and fitting, alloys with both metals and forms a perfect bond.

When the solder is fed in at the feed hole in the fitting, it becomes almost instantly visible as a bright line at the junction of the pipe and fitting, conclusively indicating that a leak-proof joint has been made.

THIS IS THE ONLY JOINT THAT CAN BE VISUALLY INSPECTED FOR LEAKS. ACTUAL TESTING BECOMES A MERE FORMALITY.

Most refrigerator manufacturers use some of these Mueller patented joints—some use them exclusively.

If you are not thoroughly familiar with the advantages of Mueller STREAMLINE products in a refrigeration installation, write, or wire us at our expense. We also manufacture a complete line of valves and fittings and can supply your every requirement.

Mueller Brass Co.

PORT HURON, MICHIGAN

MUELLER BRASS CO. OF CANADA, LIMITED, TORONTO, ONTARIO



STREAMLINE Coupling
Copper to Copper
Patent 1,770,852. Patent 1,776,502.
Other patents pending.



STREAMLINE Coupling
Copper to Outside I. P. S.
Patent 1,770,852. Patent 1,776,502.
Other patents pending.



STREAMLINE Tee
Copper to Copper to Copper
Patent 1,770,852. Patent 1,776,502.
Other patents pending.



STREAMLINE Cross
Copper to Copper to Copper to Copper
Patent 1,770,852. Patent 1,776,502.
Other patents pending.



STREAMLINE Coupling
Copper to Inside I. P. S. Thread
Patent 1,770,852. Patent 1,776,502.
Other patents pending.

(119)

Prevent Water Waste With ARCO SOLENOID VALVES

Operating automatically by the temperature or pressure control or wired in parallel with the compressor motor—the No. 682 Arco Solenoid Valve eliminates waste of water. It opens when the motor starts and closes tight when the motor stops. This valve can also be used to control the flow of refrigerant. Thousands of these valves are in use today for Refrigeration, Oil Burning, and General Industrial Work.

The No. 682 Arco Solenoid Valve is a compact magnet valve made

for any current and for water pressure up to 200 lbs. The plunger and seat are non-corrosive. The coil is insulated against "sweating." Its capacity is ample for any normal requirement. Connections are 3/8" pipe size.

Large production makes possible moderate prices for this valve, which is listed as standard by the Underwriters' Laboratories, Inc. Write today for complete details of this valve and Mercoid Controls for all refrigerating needs.



Accessories Division

AMERICAN RADIATOR COMPANY

5842 Trumbull Avenue, Detroit, Mich.

Division of

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Service Manager Gives Pointers on Keeping an Adequate Parts Stock

By G. C. Licence,
Assistant Manager of Service, Copeland Products, Inc.

INDIVIDUALS who are responsible for the installation and satisfactory servicing of electric refrigerators, both of the household and small commercial types, may give careful attention to the following pointers. These suggestions may be elaborated upon to suit local conditions, which will vary somewhat in accordance with the degree to which the installations are accessible from a central distributing point.

It is of prime importance that service and installation men be in possession of all available literature covering these activities. The literature should consist of all current confidential service bulletins, general letters, and the regular service manual published by the manufacturer of the unit to be installed and serviced.

The leading manufacturers of electric refrigeration have made available to the field organization, service manuals which, while dealing particularly with their own make of electric refrigeration, also give considerable information

on general refrigeration principles and application.

Therefore, when a man is well-grounded in the requirements for installation and servicing of a given make of electric refrigerator, he should also be in a position to handle without undue difficulty, the requirements of some other makes. It is suggested, however, that special attention be given to the literature supplied by a manufacturer with reference to his own particular unit.

The service manual and other literature supplied by the various manufacturers, should be supplemented at times by direct correspondence with the factory service department to cover special cases which present unusual difficulties. Due to the delay which must ensue while such correspondence is being carried on, it is essential that the available literature be given considerable study.

Next in importance, is the maintenance of an adequate stock of refrigerant, lubricating oil, and small machine parts which will make it possible for the local service or installation man to make repairs without having to wait for a shipment of parts from the factory. Maintaining of a proper stock of parts, refrigerant, and lubricating oil

is of great importance, because of the delivery time from the factory to outlying points.

From the accompanying reproduction of a page from a 1931 Parts Catalog, a service manager can get a concrete idea of the serviceable parts of a standard reciprocating compressor which should be carried in stock.

To this list of compressor parts, it is recommended that one or more com-

Follow Suggestions

"Follow carefully the recommendations of factory service departments in all matters pertaining to the installation and servicing of their systems," G. C. Licence of Copeland Products, says. "Use no refrigerants or oils other than those specified by the factory."

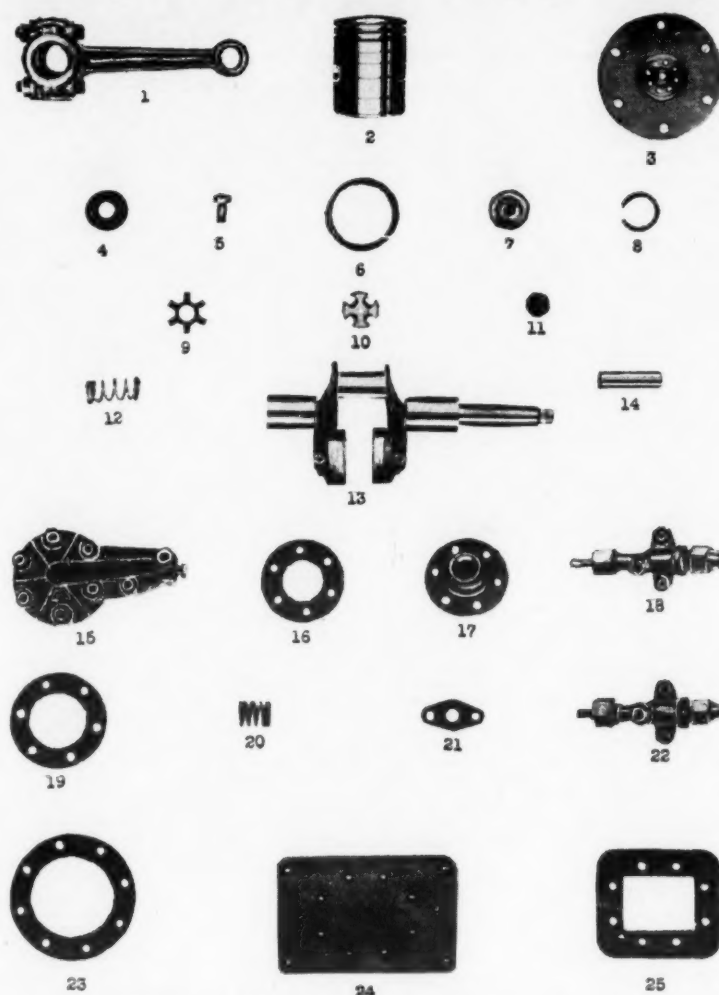
On this page Mr. Licence outlines some of the requirements of personnel and equipment which will help an organization to provide good service on electric refrigerators. Complete information on machines, a well-selected stock of parts, and intelligent service and installation men are keynotes of his plan for better operation.

plete compressor assemblies be added by central points of distribution. The quantity of these compressors on hand should depend on the number of potential units being serviced.

In addition to the compressor parts, a limited number of motor fuses or thermal cut-out switches should be on hand as well as motor parts, such as brushes and brush holders. It might also be advisable to carry a few additional electric motors of the type most commonly used, to take care of emergency repairs or replacements of electrical equipment.

Compressor drive belts in a limited quantity, which shall embrace the vari-

Keep in Stock for Service Calls



A representative selection of compressor parts which Mr. Licence suggests a service department keep in stock. These parts, by number, are: 1. Connecting rod assembly; 2. Piston—less rings and valve; 3. Discharge valve plate—less valve parts; 4. Discharge valve disc; 5. Discharge valve pilot and retaining screw; 6. Piston ring (two used); 7. Discharge valve disc stop; 8. Piston valve retaining ring; 9. Discharge valve disc spring; 10. Piston valve retainer and spring assembly; 11. Piston valve disc; 12. Discharge valve spring—upper; 13. Crankshaft complete assembly; 14. Piston pin; 15. Cylinder head assembly; 16. Seal cover gasket—fibre; 17. Seal assembly complete; 18. Discharge shut-off valve assembly complete; 19. Discharge valve plate gasket—fibre (two used); 20. Seal spring; 21. Suction and discharge valve gasket—fibre; 22. Suction shut-off valve assembly; 23. Crankcase cover gasket—fibre; 24. Cylinder base plate; 25. Cylinder base plate gasket.

ous kinds or types of belts commonly used in that territory should be added to the above. The foregoing will take care of the replacements on the condensing unit or high-pressure side of the system.

The following items which refer spe-

cifically to the cooling element, or low-pressure side of the system should be included in the stock: Standard expansion valves and their serviceable parts. One or more of the more popular sizes of cold-holds or cooling elements. This cold-hold or cooling element to be carried minus the expansion valve, control and trays.

Controls or thermal electric switches should be kept in stock, with this stock balanced in direct relationship to the number of the various types of controls which are installed in the field. This is especially important with reference to the older controls which might at the present time be obsolete. The more recent types of controls should be carried in greater quantity than should the older types.

It is important that the stock of controls be kept well balanced because of the fact that very few of the controls have serviceable parts, most difficulties necessitating a complete replacement of the control. This is more or less standard with reference to all equipment manufactured by the various companies.

A somewhat more limited number of ice freezing trays and their component parts, such as tray fronts, tray front screws, tray front spacers, grids or separators and tray bodies should be carried in stock so that it is possible for a local organization to replace, without undue delay, parts which had been damaged or in any way misused by the owner.

The subject of service and installation tools for the personal use of a service or installation man, together with installation material, presents a

(Concluded on Page 9, Column 1)

You Can Build . . .
A High Grade Product
A Better Ice Cream Cabinet . .
A Better Ice Box . .
A Better Refrigerator . .

By using BETTER STEEL SHEETS



A high-grade, special analysis steel base.



An extra-quality "copper-content" sheet.

Both of these sheets are coated with prime spelter (zinc) by a patented Heat-Treating process which fuses the coating with the base metal. As a result, the sheet is highly rust-resisting; the coating will not chip, flake or peel under the most severe formations; its finely etched surface takes paint, lacquer or baked enamel readily without previous preparation, bonding them firmly.

These sheets are ideal for use where corroding conditions exist; they meet the most exacting requirements.

Samples and Booklet on Request

The Superior Sheet Steel Company
Canton, Ohio

Division of Continental Steel Corporation; General Offices, Kokomo, Ind.

Plants at—Kokomo, Indianapolis, Canton.

Manufacturers of: Black, Galvanized, Long-Terne and Special Coated Sheets, Roofing and kindred products; Billets, Rods, Wire, Nails and All Types of Fence.

(242)

GLASS FILLERS

FOR WATER COOLERS

Send for booklet on complete line of self-closing faucets, bubblers, glass fillers, and other accessories.



Vertical Type

CENTRAL
BRASS MFG. CO.

2950 East 55th St. CLEVELAND OHIO

REFRIGERATION GASES
CARBON DIOXIDE — BUTANE — AMMONIA
ETHYL CHLORIDE — METHYL CHLORIDE
ISOBUTANE — SULPHUR DIOXIDE

30 DIFFERENT
Compressed Gases

We refill your cylinders
or supply new cylinders

One Pound
to
Carload Lots

Write for
price list



East Rutherford, N. J.

Valves
Controls
and
Equipment

SERVICE HEAD GIVES REPAIR SUGGESTIONS

(Concluded from Page 8, Column 5)

phase which has been somewhat neglected.

Most manufacturers have available, an adequate "Tool Kit" for the use of their service and installation men. This kit should be complete, and should include all standard and special tools which the installation or service man might require in the course of his labors.

Many of the tools which a service or installation man would ordinarily use may be purchased locally. There are, however, a few special tools which are peculiar to the products of individual manufacturers. It is imperative that such special tools be on hand, because they cannot very well be replaced with tools which are purchased locally.

In addition to equipping a service or installation man with the proper tools for his particular make of electric refrigerators, it is essential that the stock room of the central distributing point have an ample supply of what is known as "installation material." This consists of copper tubing, unions, flare tube nuts, line valves, tees, elbows, and a general line of brass or bronze fittings, which may be secured from manufacturers.

There is also a need for a stock of electric wiring and accessories which an electrician would ordinarily use in making the electrical connections. These items can usually be purchased from the local central distributing point.

In the event that plumbing connections are necessary, and the services of an expert plumber are not available, a stock of the necessary tools, piping, valves and fittings should be on hand, or immediately available.

We have now to consider what is probably of most vital importance—personnel.

Experience indicates that an intelligent man, with mechanical training prior to his introduction to electrical refrigeration, makes a far more satisfactory installation or service man than does an equally intelligent man who has had no previous mechanical experience.

When the services of such a man have been obtained, he should be given every possible assistance in the matter of assimilating knowledge regarding the construction, functioning, installation, and repairs incident to the responsibilities with which he will be charged.

Considerable time, effort, and money expended in selecting, training, and supervising a man should repay a distributor or dealer many times over during the years in which he will be installing equipment. The extent to which shop and field men are familiar with the equipment, and the cooperation which they are given in the matter of stocking parts, refrigerant, and oils, will determine to a considerable degree the success or failure of a distributor or dealer.

All manufacturers of electric refrigeration equipment are anxious to assist their agents in the matter of selling, installing, and servicing equipment. Above are outlined certain obligations which a distributor or dealer should assume for himself, and in which the manufacturer cannot help him beyond a given degree.

ST. LOUIS SERVICE FIRM OPERATES COMPLETE SHOP

ST. LOUIS—In a shop equipped with a large bake oven, vacuum pump, charging board, cleaning materials and accessories, valve testing equipment, and many tools, Refrigeration Service Co., operated by G. J. Wangerin and K. M. Newcum, services all types of refrigeration units in local homes and stores.

The company was organized three years ago and has built up a clientele of real estate companies, grocery stores, meat markets, refrigerator manufacturers, and domestic and household unit owners.

Real estate companies have the service organization maintain 600 units while grocery store and meat market accounts number 350. Domestic and household accounts outnumber the other two.

Recently, the organization was authorized to handle service on machines of two companies whose machines are handled through a local distributing organization. Other manufacturers are being contacted.

The shop also includes a 9-inch lathe, drill press and air compressor, grinder and buffer, and other tools.

One feature of the service is the handling of night emergency calls through telephone connections with a hotel across the street from the office. A service man is on duty all the time.

TAGLIABUE NAMES A. F. RUCKS GENERAL SALES MANAGER

BROOKLYN—C. J. Tagliabue Mfg. Co. has announced the promotion of A. F. Rucks to the position of general sales manager.

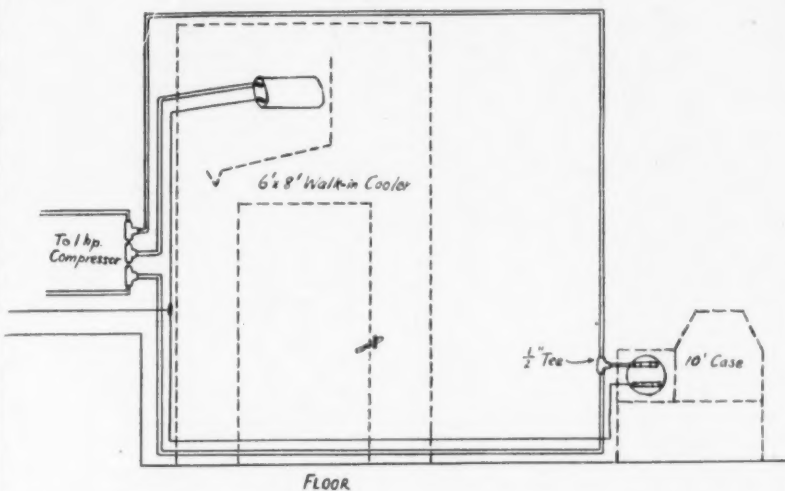
Mr. Rucks has been connected with the Tagliabue organization for 18 years, and for the past four years has served as assistant to L. C. Irwin, vice president.

SERVICE MEN'S FORUM

A DEPARTMENT DEVOTED TO THE PROBLEMS OF SERVICE AND INSTALLATION MEN

Several methods of returning oil to the condensing unit where remote installation arrangements make oil return difficult, have been described in previous forums. Mr. Alsop ran into a market job recently in which that problem appeared, and he solved it as shown below by running a suction line up over the walk-in cooler which

caused the trap. Service and installation men are urged to contribute to this department. What schemes have you discovered to master service difficulties or make installation easier? One dollar will be awarded for each idea used. Address the Engineering Editor, Electric Refrigeration News, 550 Maccabees Bldg., Detroit.



An auxiliary suction line run over a walk-in cooler which caused an oil trap solved the oil return problem for C. P. Alsop, Indianapolis.

HERE is a practical idea for the solution of the oil return problem which occasionally arises in market installations. We installed a 6x8-ft. walk-in cooler, operating with a 10-ft. display case from a 1 hp. condensing unit. The cooler was equipped with a large

flooded super-duty finned coil, while a squirrel cage flooded fin coil cooled the display case.

As shown in the adjoining sketch, suction lines were run from the three-valve manifold to each coil, and in so doing we permitted a three-foot trap or oil pocket in the display case line.

When the job was first started up, it worked fine, but shortly the pocket filled with oil, and the case got refrigeration only periodically, as sufficient pressure in the coil would overcome the oil pressure in the line.

An arrangement as shown in the "Service Men's Forum" of Aug. 12, was tried with no success because the large coil in the walk-in cooler supplied sufficient vapor to the compressor so that there was not enough suction on the trapped line to permit the case coil pressure to break through the trapped oil and return it to the compressor.

The difficulty was finally solved by running a 1/2-in. suction line from a 1/2-in. tee at the coil of the display case to the height of the cooler, and over and down to the manifold valve. This gave us an oil return, and a positive return for the vapor at all times.

This system has been in operation for six months, and since installing the overhead return for the vapor refrigerant, no trouble has been experienced.

C. P. ALSOP,
Service Supervisor, Refrigerating Equipment Corp., 927 N. Meridian St., Indianapolis, Ind.

CORINCO OPENS BRANCH

LOS ANGELES—The Cork Insulation Co. of New York City recently opened up a branch office in the central manufacturing district here.

Everlastingly - - -



Unretouched photo of a cross section greatly enlarged.

- - one solid, seamless, non-corroding copper tube

not a crack, a flaw, a weak spot—not a chance for corrosion, for scale. Work perfect and stays that way. For refrigerants, water, air, oil—the cheapest—it any way—swedge, flare, bend—it is and best.

Dehydrated and Sealed Coils

Especially prepared for immediate use in all refrigeration uses. A. S. T. M. specifications (B68-30T). Rush orders from stock.

WOLVERINE TUBE CO.

SEAMLESS COPPER BRASS & ALUMINUM

1491 Central Ave.

Detroit, Mich.

Phone Vinewood 1-5000

Export Department—H. M. Robins Company,
120 Madison Avenue, Detroit, U. S. A.
Cable Address: Robins, Detroit

Sales offices in all major cities. Stock available at
Los Angeles, 224 E. 11th St. Write or wire for
name of nearest representative

REFRIGERATOR CARS PAINTED WITH ALUMINUM

MONTREAL, Que.—Two new refrigerated cars, constructed by the Canadian National Railways are being covered entirely with aluminum paint, according to reports of that company.

Recent experiments made in the car shops indicate that aluminum paint, applied to the roofs of cars, is approximately 10 per cent more heat resistant than the red paint formerly used.

Special thermometers placed in the cars covered with aluminum paint will record the internal temperatures, and a record will be made of the ice consumption as compared with that in cars painted red.

MUNDET'S HOUSTON OFFICE IN NEW BUILDING

HOUSTON, Tex.—The office of L. Mundet & Son, Inc., has been moved from 2420 Nance St., to the new building erected for Mundet at Commerce and Palmer Sts.

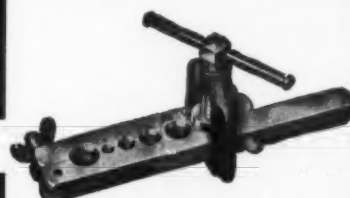
In addition to carrying a complete stock of Mundet cork products, this office also carries the full high-temperature line of asbestos products as manufactured by Keasbey & Mattison, of Ambler, Pa.

Quicker Better INSTALLATIONS



Imperial Tube Cutter

A highly efficient tool for cutting copper, brass, block tin and lead tubing. Takes all sizes of tubing from 1/8" to 1 1/2" and makes a right-angle cut, quickly and cleanly, leaving no burrs or chips to clog the line. Tubing does not become out of round as when cut in a vise. Cuts tubing in half the time required by old methods. No. 94-F Tube Cutter, each \$2.50



Imperial Flaring Tool

Makes a perfect flare and taper to tubing needed for making up tight joints. Does the work in least time. Simple to operate. No loose dies—no vise necessary. No. 93-F takes tubing sizes 3-16", 1/4", 5-16", 3/8", 7-16" and 1/2", each..... \$3.00
No. 95-F takes tubing sizes 1/4", 5-16", 3/8", 1/2", and 3/4", each.....\$4.00



Imperial Tube Bender

Tubing can be quickly bent into desired shape by hand when Tube Bender is slipped over tubing. Set of seven benders furnished for 1/4", 5-16", 3/8", 7-16", 1/2", and 3/4" tubing sizes. Price complete set, \$2.75
No. 101-F.....



Imperial Brass Forgings

Accurately made to meet requirements of Iceless Refrigerator Manufacturers. Will not leak. Let us quote on your requirements.

New Free Catalog

The new Imperial Catalog illustrates and describes the complete Imperial Line of Brass Forgings, Valves, Manifolds, Tools, etc. Send for this free catalog today.

Imperial
BRASS MFG. CO.
565 South Racine Ave.
CHICAGO, ILL.

REVIEW OF LATEST PATENTS GRANTED

ISSUED AUGUST 11

(Concluded from August 26 issue)

1,818,364. METHOD OF PREPARING ICE CREAM. Grover D. Turnbow, Davis, Calif., assignor to one-half to Chester Earl Gray, Oakland, Calif. Filed Nov. 13, 1926. Serial No. 148,283. 7 Claims. (Cl. 62-174.)

1. The method of preparing ice cream comprising the separately performed steps of reducing the temperature of the mixture to a point where the water content thereof is partially frozen and agitating said mixture to incorporate air therein, the step of incorporating air being substantially and entirely performed subsequently to the other.

1,818,413. COMPRESSOR. Samuel W. Luitwieler, Los Angeles, Calif. Filed Mar. 21, 1928. Serial No. 263,351. 7 Claims. (Cl. 230-185.)

1. A compressor comprising in combination a body structure with a cam chamber therein, said structure having a cover at the top forming a closure for the cam chamber, a cam mounted on a rotatable shaft, said shaft being journaled in the said structure, a pair of cylinders connected to the structure at opposite ends of the said chamber, a piston yoke having piston plungers, the plungers operating in the said cylinders, the yoke extending across the said chamber, means interacting between the cam and the piston yoke, and intake and discharge valves connected to each cylinder remote from the piston chamber.

1,818,433. REFRIGERATION. Eric Herbert Ryden, New York, N. Y., assignor to Electrolux Serval Corporation, New York, N. Y., a Corporation of Delaware. Filed Dec. 6, 1927. Serial No. 238,220. 5 Claims. (Cl. 62-119.5.)

1. Refrigerating apparatus comprising a generator having a plurality of heated chambers, a receiver, an analyzer, an absorber, means to raise liquid from one of said chambers to said receiver, another of said chambers being connected to said analyzer to supply vapor thereto, means to introduce absorption liquid into said analyzer, a condenser for liquefying vapor expelled in the generator, a connection between said analyzer and said condenser, the parts being so connected that all vapor passing to the condenser from the chambers and the receiver is forced to pass through the analyzer in counter flow to and in direct contact with absorption liquid passing therethrough, and means for conveying liquid by gravity from said receiver to the upper part of said absorber.

1,818,437. METHOD OF AND APPARATUS FOR ELECTRIC REFRIGERATION. Harve R. Stuart, Springfield, Ohio. Filed June 28, 1926. Serial No. 118,871. 4 Claims. (Cl. 62-170.)

1. A thermo-electric element for refrigerating purposes consisting of two dissimilar metals of low resistance, with means comprising an electric and heat conducting plate at one side for absorbing heat and projections at the other side for dissipating heat, and a source of direct electric current of low voltage and high amperage, the positive pole of said current being supplied to the metal having the lowest thermo-electric capacity and the negative pole to the one having the highest thermo-electric capacity.

1,818,587. REFRIGERATION. Donald G. Smellie, Maywood, Ill., assignor to The Hoover Company, a Corporation of Ohio.

Filed Feb. 21, 1927. Serial No. 169,765. 4 Claims. (Cl. 62-119.)

1. In a refrigerating system, the combination of a refrigerator enclosure and a series of absorption refrigerating units each having a heat absorbing station and a heat dissipating station, the initial absorbing station of the series being located within said enclosure and the final dissipating station being located outside of said enclosure, and each of the other absorbing stations being arranged in connection with a contemporary dissipating station to form an effective heat transferring unit and thereby creating a unitary refrigerating system.

1,818,673. REFRIGERATING APPARATUS AND METHOD OF HEAT TRANSFER THEREIN. Lloyd G. Copeman, Flint, Mich., assignor to Copeman Laboratories Company, Flint, Mich., a Corporation of Michigan. Filed Apr. 11, 1928. Serial No. 269,070. 8 Claims. (Cl. 62-95.)

2. An ice cream cabinet or similar structure comprising, one or more ice cream cans, a body of brine positioned centrally of said ice cream can or cans, means for conducting a volatile refrigerant immersed in said brine, and a heat conducting medium of a different nature positioned around said ice cream can or cans.

1,818,740. COUNTER-EVAPORATOR. Robert Glenn Osborn, Beloit, Wis., assignor to National Refrigeration Corporation, Beloit, Wis., a Corporation of Delaware. Filed May 31, 1930. Serial No. 458,848. 4 Claims. (Cl. 62-95.)

1. An evaporator comprising a pair of substantially parallel spaced longitudinally refrigerant chambers connected substantially throughout their lengths by a relatively thin web-like passage.

1,818,816. PROCESS AND APPARATUS FOR OBTAINING DENSE CARBON DIOXIDE SNOW DIRECTLY FROM LIQUID CARBON DIOXIDE. Hans Rufener and Theophil Elchmann, Bern-Liebefeld, Switzerland, assignors, by mesne assignments, to International Carbonic Engineering Company, Kennett Square, Pa., a Corporation of Delaware. Filed Dec. 18, 1928. Serial No. 326,898, and in Switzerland June 26, 1928. 16 Claims. (Cl. 62-121.)

1. A process of obtaining dense, specifically heavy carbon dioxide ice from liquid carbon dioxide, including the steps of expanding the liquid carbon dioxide to a pressure that corresponds approximately to the triple point of carbon dioxide, whereby snow and gases are produced, and in compelling gas to diffuse through the snow in order to compress the snow in a single operation simultaneously with a further reduction of pressure to form the snow into a mass of higher density.

1,818,896. DISCHARGE ATTACHMENT FOR FROZEN PRODUCT MACHINES. Elton D. Kohr, York, Pa. Filed Dec. 23, 1929. Serial No. 416,182. 19 Claims. (Cl. 62-114.)

1. In a discharge attachment for frozen product machines of that type provided with a discharge spout, the combination of a stationary spreader adapted to be mounted in encompassing position with respect to the outlet end of the spout, and a stationary baffle arranged forwardly and in spaced relation with respect to said spreader and adapted to oppose in spaced relation such end.

ISSUED AUGUST 18

1,819,172. REFRIGERATING APPARATUS. Elmer L. Horlacher, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Mar. 30, 1928. Serial No. 266,071. 1 Claim. (Cl. 286-11.)

In refrigerating apparatus including a compressor casing, a shaft passing through said casing, a seal for said casing at the point where said shaft passes therethrough, said seal comprising a flexible diaphragm having hermetic connections with said casing and with said shaft, one of said connections being a sliding frictional connection including a bearing surface of a porous lubricant impregnated metal member cemented to said diaphragm, and a ring member soldered to said diaphragm on the

Wirfs PATENTED
AIRTITE™ GASKET
FOR REFRIGERATOR DOORS
IS MADE IN FIVE STANDARD SIZES

For the manufacturer requiring a special type, we offer the services and experience of an organization devoted exclusively to door gasket manufacturing

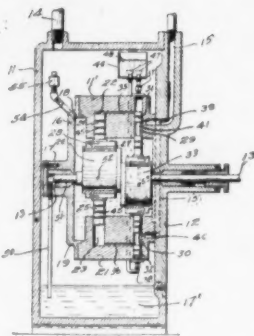
Let us work from your blueprints

DEALERS in electric refrigeration have many occasions to use "AIRTITE" Gasket. Write for samples and prices.

WIRFS CORPORATION
135 S. 17th St. St. Louis, Mo.

side away from said hermetic connection, substantially as described.

1,819,285. HIGH SPEED COMPRESSOR. Wilfred Fourness, Oakland, Calif., assignor to The Fourness Development Corp., New York, N. Y., a Corporation of New York. Filed Feb. 20, 1928. Serial No. 255,759. 9 Claims. (Cl. 230-185.)



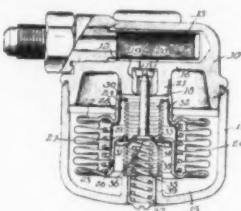
1,819,285

1. In a compressor, a cylinder and piston, means for causing reciprocary movement between the cylinder and piston, and a sliding valve operated by said means, said cylinder having a port opening in a passageway over which opening the valve is arranged to slide, said passageway also communicating with a discharge opening and an intake opening, said openings being so arranged that movement of the valve in one direction serves successively to place the cylinder port in communication with one of said apertures while interrupting communication with the other, and then on continued movement, communication with said one aperture is interrupted and communication with the other is established.

1,819,324. DEFROSTING DEVICE FOR REFRIGERATORS. Granville S. Fleece, Memphis, Tenn. Filed Dec. 13, 1929. Serial No. 413,740. 3 Claims. (Cl. 62-108.5.)

2. In a refrigerator, a support, a removable tray supported thereby and subject to freezing thereto, an electric heating element carried by said tray, a separable plug member for said element carried by said tray, a complementary plug member within and carried by a wall of said refrigerator, current wires leading thereto, said heating element circuit being interrupted at the front of said tray and an automatically releasable switch for completing said heating element circuit.

1,819,370. EXPANSION VALVE. Rasmus M. Hvid, Chicago, Ill. Filed Jan. 10, 1931. Serial No. 507,899. 12 Claims. (Cl. 137-153.)



1,819,370

1. In combination, a casing, a wall therein providing low and high pressure chambers, said wall having a port, a needle valve controlling said port, a bellows in the low pressure chamber, said bellows having an axial opening, one end of the bellows being fixedly connected to said wall, a floating bellows head to which the opposite end of the bellows is connected, means for guiding the reciprocation of said bellows head, means connecting the bellows head and needle valve, a spring tending to expand said bellows and to open said needle valve, a second bellows surrounding the needle valve and connected at one end to said bellows head, a second spring tending to close said needle valve, and a third bellows surrounding said second spring, said second and third bellows and said springs and needle valve being with the axial opening in the first bellows.

1,819,423. AIR HUMIDIFIER. William Knowlton and William S. Vaughan, Glen Ellyn, Ill. Filed April 21, 1930. Serial No. 446,048. 2 Claims. (Cl. 126-113.)

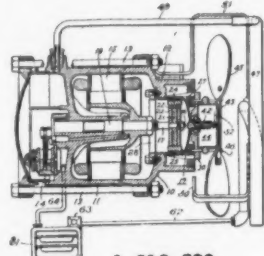
1. In combination with a heating apparatus and a jacket surrounding said heating apparatus, said jacket having a cold air intake and a plurality of warm air exits therein, means for withdrawing air from said cold air intake, means for compressing said air, means adapted with said compressed air to atomize water, and means for injecting said compressed air and atomized water into the patch of heated air flowing out of said air exits in said jacket.

1,819,510. DEFROSTING APPARATUS.

Edward S. Hebler, Williamsville, N. Y. Filed Oct. 18, 1929. Serial No. 400,513. 1 Claim. (Cl. 62-167.)

An apparatus for defrosting the cooling coils in cold storage plants, said coils including valves for controlling the admission and discharge of the cooling brine to and from the same, comprising a portable frame, a heating chamber mounted on said frame and having inlet and outlet pipes connected thereto, means for detachably joining said pipes to the cooling coil at a point between the same and their controlling valves, valves in said pipes for controlling the passage of the brine in the coil through said chamber, and a pump interposed in one of said pipes for circulating the heated brine through the coil to defrost it.

1,819,528. REFRIGERATOR. Matson C. Terry, Mansfield, Ohio, assignor to Westinghouse Electric & Mfg. Co., a Corporation of Pennsylvania. Filed Oct. 30, 1928. Serial No. 316,068. 21 Claims. (Cl. 62-115.)



1,819,528

1. In a refrigerating apparatus, in combination, a hermetically sealed casing, a motor and a compressor within the casing, an evaporator, a condenser, and a fan actuated by the motor for forcing air around the condenser.

1,819,568. REFRIGERATING APPARATUS. Reuben E. Ottenheimer, Baltimore, Md. Filed Dec. 19, 1927. Serial No. 241,101. 43 Claims. (Cl. 62-95.)

39. A refrigerating mechanism comprising a chamber, a form therein having a plurality of downwardly diverging walls so disposed relative to the walls of said chamber as to accelerate fluid currents downwardly through said chamber.

1,819,569. REFRIGERATING APPARATUS. Reuben E. Ottenheimer, Baltimore, Md. Filed Dec. 19, 1927. Serial No. 241,102. 27 Claims. (Cl. 62-95.)

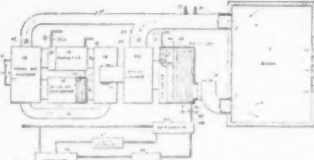
1. A refrigerating apparatus including a tank, angular fins thereon, and a coil having its turns disposed within the angles of the fins.

1,819,588. TEMPERATURE CONTROL SYSTEM AND APPARATUS. Morris H. Bennett, Waterbury, Conn., assignor to Scovill Mfg. Co., Waterbury, Conn., a Corporation of Connecticut. Filed Feb. 20, 1929. Serial No. 341,379. 2 Claims. (Cl. 236-68.)

1,819,643. METHOD OF COOLING AND DRYING AIR. Walter L. Fleisher, New York, N. Y., assignor to The Cooling & Air Conditioning Corp., New York, N. Y., a Corporation of New York. Filed Nov. 30, 1927. Serial No. 236,650. 8 Claims. (Cl. 257-8.)

3. The process of conditioning air which comprises apportioning the air between a refrigerating dehydrator and a hygroscopic dehydrator mixing the appointed air and adjusting the proportions of the mixture to control both temperature and humidity.

6. An apparatus of the character described including a dehydrating apparatus, cooling means arranged to the rear thereof, an en-



1,819,643

closure formed with inlet and outlet openings, means providing a passageway extending from said outlet opening and connected to the intake end of said dehydrating apparatus, a by-pass in said passageway, and means providing a passageway connected to said cooling means, said by-pass and to the intake opening of said enclosure whereby withdrawn unconditioned air is injected into the dehydrated cooled air and the resultant mixture is introduced into said enclosure.

1,819,832. HEAT EXCHANGE DEVICE. Francis W. Williams, Charlotte, N. C. Filed May 20, 1929. Serial No. 364,490. 2 Claims. (Cl. 257-198.)

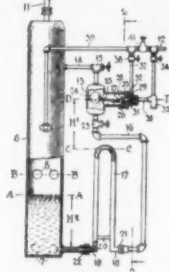
1. In a heat exchange device, a plurality of troughs mounted one above the other, said troughs being in the same vertical

plane and being parallel to each other, said troughs being adapted to receive a fluid to be refrigerated, said fluid being adapted to pass from the end of one trough and to fall into the end of another trough, and so on through the series, a coil passing through each of the troughs and being bent after leaving one trough to follow the course of the next preceding trough respectively, a retarding member in the open end of each of the troughs adapted to retard the flow of the fluid adapted to be refrigerated until the fluid has covered the coil in the trough, and a plurality of holes in the bottom of each trough adapted to permit the trough to drain when the machine is not in operation.

1,819,851. LID FOR REFRIGERATOR CABINETS. Nelson Martin Vandegriff, Philadelphia, Pa., assignor to Sheip & Vandegriff, Inc., Philadelphia, Pa., a Corporation of Pennsylvania. Filed Oct. 13, 1930. Serial No. 488,214. 15 Claims. (Cl. 220-24.)

9. A lid for refrigerator cabinets comprising in combination an annular rim member having a shoulder on the inner wall thereof, a top plate overlying the rim member and having its edge reversely bent upon itself, a bottom an expansible oil chamber and an expansible steam chamber, one of the chambers being of greater area than the other, a spindle movable in the attachment casing and turned flange at the opposite edge for engagement with the shoulder on the rim member, and insulating material within the space formed by the rim member and said plates.

1,819,861. REFRIGERATION. John G. Bergdoll, York, Pa., assignor to York Ice Machinery Corp., York, Pa., a Corporation of Delaware. Filed Dec. 20, 1930. Serial No. 503,847. 15 Claims. (Cl. 62-126.)



1,819,861

1. The combination with an evaporator, of means for maintaining a desired liquid level therein, comprising a liquid containing manometer; a valve controlling the supply of liquid refrigerant to the evaporator; operating means for said valve responsive to the height of the liquid in said manometer; a pressure transmitting connection between said manometer and a point within the evaporator below the liquid level therein; means for developing in said connection a vapor pressure at least equal to the head of the liquid refrigerant at said point; and means for varying the vertical height of the vapor filled portion of said pressure transmitting connection.

1,819,978. BULK-HEAD CONSTRUCTION FOR REFRIGERATOR CARS. Edward J. Shur, New Orleans, La. Filed Dec. 17, 1929. Serial No. 416,856. 3 Claims. (Cl. 105-376.)

1. In a bulk-head construction, the combination of a car, longitudinal notch bars secured to the sides thereof, other longitudinal side cars pivotally secured to the car, rails longitudinally arranged in the ceiling of the car, trolleys adapted to travel over the rails, depending bars pivotally arranged.

(Concluded on Page 11, Column 1)

PROFESSIONAL SERVICE

Testing Service

for Domestic and Commercial Electrical Refrigeration

Testing and experimental laboratory service for Manufacturer, Distributor, Central Station. Test data exclusive property of client.

Electrical Testing Laboratories
80th St. & East End Ave.
NEW YORK

PATENTS
Searches, Reports, Opinions by a Specialist in REFRIGERATION
H. R. VAN DEVENTER
Solicitor of Patents - Refrigeration Engineer
342 MADISON AVE. NEW YORK

Testing Laboratory
For refrigerators and refrigerating equipment
George B. Bright Co.
Refrigerating Engineers and Architects
2615 12th St., Detroit, Mich.

Attention Service Managers
When you need mechanic, installers and service-men—men practically trained in Electric Refrigeration work—call on us. We can furnish qualified graduates to meet your specifications. No charge to you or to them. Write, wire or phone.
THE NATIONAL TECH
Where men learn by doing—not by correspondence
4300 Euclid Ave. Cleveland, Ohio



Let's get.. Acquainted

C. I. C.'s new forty page catalog speaking! I'm here to tell you about better prices... better value... better service... in cold storage insulation. I represent the famous Corinco Line... Corinco Corkboard... Cork Pipe Covering... Acoustical Corkboard... Machinery Isolation. I'm out to meet everybody in the country who uses cold storage space... I've got the goods... and I'm ready to deliver them.
• Just drop me a post card and I'll be out to see you in the next mail.

Corinco Insulation Co., Inc.
154 Nassau St., New York City

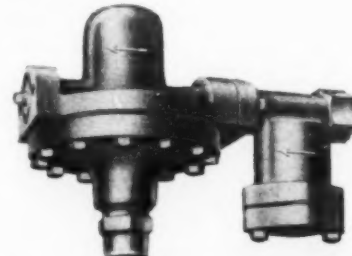
POLAR AMMONIA EXPANSION VALVE

• Service is Expensive •

The best refrigerating machine ever built is only as good as the expansion valve used.

Many inferior expansion valves have condemned some of the best installations. Use of POLAR PRECISION BUILT AMMONIA EXPANSION VALVE will eliminate considerable expense.

Write for further details



Atlas Copper & Brass Mfg., Co.

2734 High Street

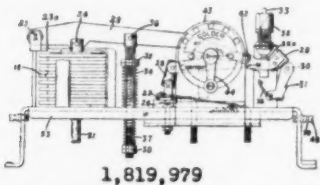
Chicago, Ill.

IN FIELD OF ELECTRICAL REFRIGERATION

(Concluded from Page 10, Column 5)

ranged in the shaft of the trolleys, gates secured to the depending bars, props pivotally secured to the gates, and slide bolts secured in the gates and adapted to engage the bars.

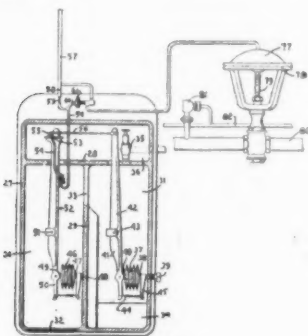
1,819,979. REFRIGERATING APPARATUS SWITCH CONTROL. Otto M. Summers, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed May 30, 1928. Serial No. 281,599. Renewed March 5, 1931. 21 Claims. (Cl. 200-83.)



1,819,979

1. In a pressure responsive switch for a refrigerating system, a platform, a pressure responsive element mounted on said platform, electric contacts and snap action mechanism interposed between said contacts and pressure responsive element and mounted on said platform, a device with manual operating means mounted on said platform and normally independent of said snap action mechanism, but operable to modify said snap action mechanism to vary the pressures at which said mechanism is responsive without disturbing the normal adjustment of said switch, said device being provided with means operable at will for maintaining open said contacts to provide a defrosting operation for said refrigerating system.

1,819,987. THERMOSTATIC APPARATUS. William B. Hodge, Charlotte, N. C., assignor to Parks-Cramer Co., Fitchburg, Mass., a Corporation of Massachusetts. Filed April 23, 1929. Serial No. 357,460. 4 Claims. (Cl. 236-44.)



1,819,987

4. A regulator comprising thermostatic motors subject respectively to the wet and dry bulb temperatures of the air each motor consisting of a plurality of thermo-sensitive cells having the same coefficient of expansion and interchangeable with any other cell of the same or another motor of said regulator, each cell comprising initially flat diaphragm walls of thin sheet metal peripherally united to provide a rigid annulus with the effective areas of said walls circumscribed by said annulus, confining a volatile fluid and expandable spherically within a predetermined temperature range, and producing uniform amounts of axial movement by elastic resistance compensatory of the varying changes in the vapor pressure of the confined fluid which result from uniform changes in temperature, and means detachably coupling the central portions of the contiguous diaphragms of successive cells of each motor in axial alignment to provide a structure in which the combined axial movement of the respective motors is directly proportional to variations in the temperature to which they are respectively subjected.

REISSUES

18,154. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Original No. 1,768,600, dated July 1, 1930. Serial No. 635,521, filed April 30, 1923. Application for reissue filed July 8, 1931. Serial No. 549,525. 5 Claims. (Cl. 236-99.)

1. A control for refrigerating systems comprising a chamber containing a substance to be frozen, and a substance remaining in the gaseous phase throughout the temperature cycle, said chamber comprising a flexible wall, and means suddenly responsive to expansion of the substance to be frozen for controlling the operation of the refrigerating system.

ISSUED AUGUST 25

1,820,012. REFRIGERATING APPARATUS. Granville S. Dickey, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Dec. 22, 1927. Serial No. 241,759. 3 Claims. (Cl. 62-126.)

2. A refrigerating element for refrigerating apparatus comprising in combination a freezing enclosure adapted to receive ice-making containers, self-supporting means in the enclosure, a removable shelf adapted to separate the enclosure into a plurality of compartments each adapted to receive a container, and cooperating vertical shoulders on the shelf and on the enclosure for preventing movement of the shelf in a horizontal direction, said shelf being movable in a vertical direction to disengage said shoulders and permit the removal of the shelf from the enclosure in a horizontal direction.

1,820,031. REFRIGERATING APPARATUS. Donald H. Reeves, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Feb. 27, 1928. Serial No. 257,334. 23 Claims. (Cl. 62-126.)

1. Refrigerating apparatus comprising in combination a casing, a refrigerating element including a circular coil of resilient

refrigerant conduit, the coil being normally of a diameter different from the corresponding dimension of the casing, said coil being sprung into engagement with the casing to place the convolutions of the coil in intimate thermal contact with the casing.

6. Refrigerating apparatus comprising in combination a compartment for receiving ice-making containers; a shelf for supporting a container within the compartment; and retaining means for the shelf, including means near one end of the shelf permitting horizontal movement but preventing vertical movement of the shelf and means near the other end of the shelf preventing horizontal movement but permitting vertical movement of the shelf.

22. Refrigerating apparatus comprising in combination a refrigerating element having an enclosing casing and a temperature responsive element for controlling the refrigerating element, the temperature responsive element being disposed partly within and partly outside of the casing to be influenced by the temperature both of the refrigerating element and of the surrounding atmosphere, said temperature responsive element being a container charged with expandable fluid and adjustably supported to permit varying the ratio of the parts within the outside of the casing.

1,820,045. REFRIGERATING APPARATUS. Henry P. Braeutigam and Granville S. Dickey, Dayton, Ohio, assignors to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Aug. 31, 1928. Serial No. 303,202. 8 Claims. (Cl. 62-126.)

6. Refrigerating element for refrigerating apparatus comprising in combination a freezing enclosure open at the front and adapted to receive ice-making containers, a ledge in said enclosure for supporting a shelf, a removable shelf on the ledge separating the enclosure into a pair of compartments each adapted to receive a container, said shelf being removable through the open front while the ledge is maintained in position and an integral hook on said shelf engaging the ledge to prevent vertical movement of the front end of the shelf when said shelf is in position.

1,820,063. PRESSURE ELECTRIC SWITCH. Frederick C. Geller, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Aug. 9, 1928. Serial No. 128,022. 12 Claims. (Cl. 200-81.)

1. In a switch, movable contact means, a normal pressure actuator having lost motion connection with said contact means, and an emergency pressure actuator having a connection with said contact means independent of said lost motion connection.

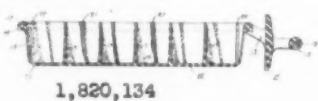
1,820,070. REFRIGERATOR. Herndon P. Hippee, Des Moines, Iowa; Marguerite B. Hippee, administratrix of said Herndon P. Hippee, deceased, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Nov. 5, 1928. Serial No. 317,426. 5 Claims. (Cl. 62-126.)

3. A refrigerating element for refrigerating apparatus comprising in combination, a freezing chamber open at one end, a plurality of relatively shallow freezing trays removably placed within said chamber, said trays being normally spaced apart when located in said chamber, and means for bridging the space between said trays at the open end of said chamber, said means being movable inwardly upon the insertion into said chamber of a tray of greater depth than one of said shallow trays.

1,820,100. CRANK CASE SEAL. Harry E. Thompson, Detroit, Mich. Filed Oct. 17, 1927. Serial No. 226,537. 1 Claim. (Cl. 286-11.)

A seal construction for effecting a seal between a rotating shaft and a housing, comprising a bellows mounted over and in non-rotative relation with the shaft, a carbon ring member connected to one end of the bellows, means on the housing for providing a frictionally engaging seal with this carbon ring, a shoulder on the shaft, a ringlike end member connected to the opposite end of the bellows and abutting against this shoulder and means for clamping this ringlike member against the shoulder in sealing relation, and a compression spring within the bellows for urging the carbon ring against its cooperating surface.

1,820,134. FREEZING CONTAINER. Harvey D. Geyer, Dayton, Ohio, assignor to The Inland Mfg. Co., Dayton, Ohio, a Corporation of Delaware. Filed May 12, 1930. Serial No. 451,708. 14 Claims. (Cl. 62-108.5.)



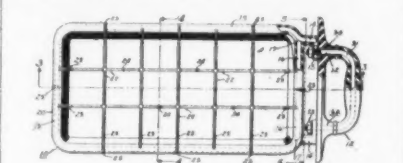
1,820,134

1. A freezing tray adapted to be inserted within a freezing chamber, comprising: a molded flexible rubber container having the upper edges of its side walls stiffened by molded in situ metal inserts, said inserts being rotatable relative to the confining rubber.

ber, whereby said side walls may be more easily partially turned inside out.

1,820,152. REFRIGERATING APPARATUS. Duane R. Neal, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Mar. 30, 1928. Serial No. 266,057. 4 Claims. (Cl. 286-11.)

4. In a refrigerating system, a seal comprising a corrugated metal bellows, and squeak damping means confined unhermetically between the corrugations.



1,820,221

1. A freezing tray adapted to be inserted by hand within a freezing tray compartment, comprising: a molded non-metallic container having a stiffening metal insert therein, said insert having a portion projecting outwardly in front of said container, and a separate flexible rubber closure front for said compartment secured to said outwardly projecting portion of said insert.

3. A molded rubber freezing container having a metal stiffening insert molded in situ therein, said metal insert having a series of spring clips snapped thereupon in spaced relation and extending to the outer surface of the molded rubber, whereby said insert is properly located in the mold cavity.

1,820,300. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Feb. 23, 1926. Serial No. 89,838. 16 Claims. (Cl. 200-152.)

1. A mercury switch of the character described comprising an outer envelope, a protective sleeve of arc resistant material disposed in said envelope out of contact with the walls thereof, said sleeve being open at both ends and providing a passage-way between one end of said envelope and the other end thereof, a ring-like supporting member and partition interposed between the sleeve and the outer envelope, layers of cement uniting the supporting member to the sleeve and to the outer envelope, a body of mercury in said envelope, electrodes sealed through the outer envelope and making contact with the body of mercury, said parts being so arranged that upon oscillation of said envelope said body of mercury is caused to alternately divide and unite at a point or points within said sleeve, removed from the walls of the envelope and intermediate said electrodes.

1,820,304. REFRIGERATOR. George H. Ellis, St. Paul, Minn., assignor to The Insulite Co., Minneapolis, Minn., a Corporation of Minnesota. Filed Nov. 26, 1928. Serial No. 321,927. 13 Claims. (Cl. 200-9.)

1. An insulating unit adapted to be interposed between inner and outer walls of a refrigerator, comprising a plurality of comparatively stiff, slightly compressible insulating boards, and furring strips between said boards and spacing the same apart, the said furring strips being situated in spaced-apart relation to each other and furring strips between certain surfaces of said insulating boards bearing offset relation to furring strips between other surfaces of said insulating boards.

1,820,411. PROCESS OF MANUFACTURING ARTIFICIAL CORK. Enrique Vincke, Barcelona, Spain, assignor, by mesne assignments, to Armstrong Cork Co., Lancaster, Pa., a Corporation of Pennsylvania. Substantive for applications Serial No. 659,417, filed Aug. 25, 1923, and Serial No. 663,932, filed Sept. 20, 1923. This application filed Jan. 4, 1927. Serial No. 159,017. 4 Claims. (Cl. 154-2.)

1. The process of producing cork products of superior flexibility which comprises subjecting cork to a severing operation along lines substantially perpendicular to the radial walls of the cells of the cork, subjecting the resulting severed sheets or films to a breaking-up action to derive cork scales, applying adhesive to the same, assembling the adhesive-applied scale while subjecting the same to relative movement to effect substantially face to face contact of the scales with one another and molding the same.

1,820,453. SYSTEM OF REFRIGERATION. John P. Green, Philadelphia, Pa. Filed Dec. 19, 1925. Serial No. 76,516. 10 Claims. (Cl. 62-141.)

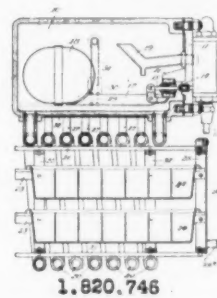
1. In combination, refrigerating means

adapted to form ice within a certain radius thereof and a beverage system subject to intermittent loads, comprising a conduit having a greatly enlarged elongated section extending partly within said radius in predetermined relation with said refrigerating means, whereby a predetermined portion of the beverage fluid may be frozen without interrupting the flow of the remainder through said conduit due to ice clogging said conduit.

1,820,641. TANK FRAME FOR REFRIGERATOR CARS. Benjamin Hamelton Yoder, Chicago, Ill., assignor, by mesne assignments, to Industrial Patents Corp., Chicago, Ill., a Corporation of Delaware. Filed Oct. 11, 1930. Serial No. 488,065. 3 Claims. (Cl. 62-19.)

1. A top retaining frame for a battery of brine retaining ice tanks in a refrigerator car consisting of two parallel angle irons adapted to span the width of a refrigerator car and be firmly anchored thereto in combination with angle iron and channel iron spacers for holding the brine tanks in position.

1,820,746. CHILLING UNIT. John J. Korenchan, Chicago, Ill. Filed June 29, 1929. Serial No. 374,828. 16 Claims. (Cl. 62-126.)



1,820,746

6. A chilling unit comprising a refrigerant boiler, a series of coils formed from a single length of tube, conduit means communicating with the upper end of each coil and with said boiler and means adapted to supply liquid refrigerant to said coils.

1,820,806. REFRIGERATING APPARATUS. George A. Jewell, Wilson, N. C., assignor to Hackney Bros. Body Co., a Corporation of North Carolina. Filed Jan. 30, 1931. Serial No. 512,419. 8 Claims. (Cl. 62-91.5.)

1. In a refrigerating apparatus, a container for articles to be refrigerated and adapted to be contained within a housing in spaced relation to the walls of the latter, a bunker adapted to contain solid carbon dioxide extending into the container, said bunker having a gas discharge port and further having a gas return port in

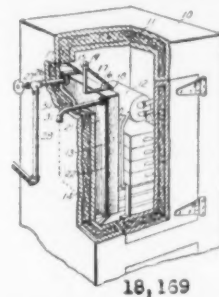
higher plane than the discharge port, and a plurality of deflectors seated on the container and each having an end thereof terminating adjacent and in spaced relation to said return port.

REISSUES

18,168. REFRIGERATOR. Herbert T. Herr, Philadelphia, Pa., assignor to Westinghouse Electric and Mfg. Co., a Corporation of Pennsylvania. Original No. 1,697,185, dated Jan. 1, 1929. Serial No. 643,403. Filed June 4, 1923. Application for reissue filed Oct. 20, 1930. Serial No. 490,038. 12 Claims. (Cl. 62-126.)

6. Refrigerant liquid storage and evaporating means for refrigerating apparatus comprising a fabricated unitary structure formed of a pair of nested sheet-metal casings spaced apart but having one of said casings joined at its periphery to the other of said casings to provide a relatively shallow refrigerant chamber, said chamber in operating condition being substantially filled with liquid refrigerant, the inner casing being so formed as to provide a longitudinal freezing chamber for receiving an ice tray, and means for rigidly fastening said casings to each other at a plurality of points intermediate their peripheries whereby to prevent deformation of the casings under pressures other than atmospheric.

18,169. FOUNTAIN TANK. Howard K. Pinkerton, Madison, Wis., and Freeman L. Rhyndress, Kansas City, Mo., assignors, by mesne assignments, to General Electric Co., a Corporation of New York. Original No. 1,692,223, dated Nov. 20, 1928. Serial No. 141,505. Filed Oct. 14, 1926. Application for reissue filed Aug. 13, 1929. Serial No. 385,622. 7 Claims. (Cl. 62-141.)



18,169

1. In a device of the character described, an insulated receptacle, refrigerating means therein, a tank mounted in said receptacle having an inlet adjacent one end thereof and an unobstructed outlet adjacent the other end thereof, means exterior to the tank for controlling the inlet and baffle members in said tank between said inlet and said outlet.

Revere Brass Forgings

speed production...cut costs

One of the oldest and most prominent manufacturers of refrigerators recently changed from castings to Revere Brass Forgings for fittings in their refrigerant lines. Three important advantages appealed particularly to this manufacturer, whose letter to us says (in part):

"We are handling a gas which is extremely thin, and the close texture and grain construction of Revere Brass Forgings is a decided necessity. Another factor: with Revere Forgings we are able to maintain a definite inventory figure, not possible with castings because of high scrap. If it were necessary to revert to castings, we would be seriously handicapped in our manufacturing program."

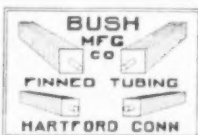
Other advantages of Revere Brass Forgings include lighter weight and easier machinability, with resultant savings amounting to as high as 45%.

Other Revere products for the electric refrigeration industry, Dehydrated Seamless Copper Tubing, Sheet Copper, Brass Rod. For further information address Revere Copper and Brass Incorporated, 230 Park Avenue, N. Y. C.

Revere Copper and Brass INCORPORATED

Baltimore Division, Baltimore, Md. Dallas Division, Chicago, Ill.
Higgins Division, Detroit, Mich. Michigan Division, Detroit, Mich.
Taunton-New Bedford Division, Taunton, Mass. Rome Division, Rome, N. Y.

EXECUTIVE OFFICES: NEW YORK CITY
GENERAL OFFICES: ROME, N. Y.



CONDENSERS STANDARD SIZES OR TO YOUR SPECIFICATIONS FINNED TUBING STRAIGHT LENGTHS OR FABRICATED

THE BUSH MFG. CO.
HARTFORD, CONN.

W. H. MARK HANNA, 6-247 General Motors Bldg., DETROIT, MICH.
REFRIGERATION APPLIANCES, CHICAGO VAN D. CLOTHIER, LOS ANGELES